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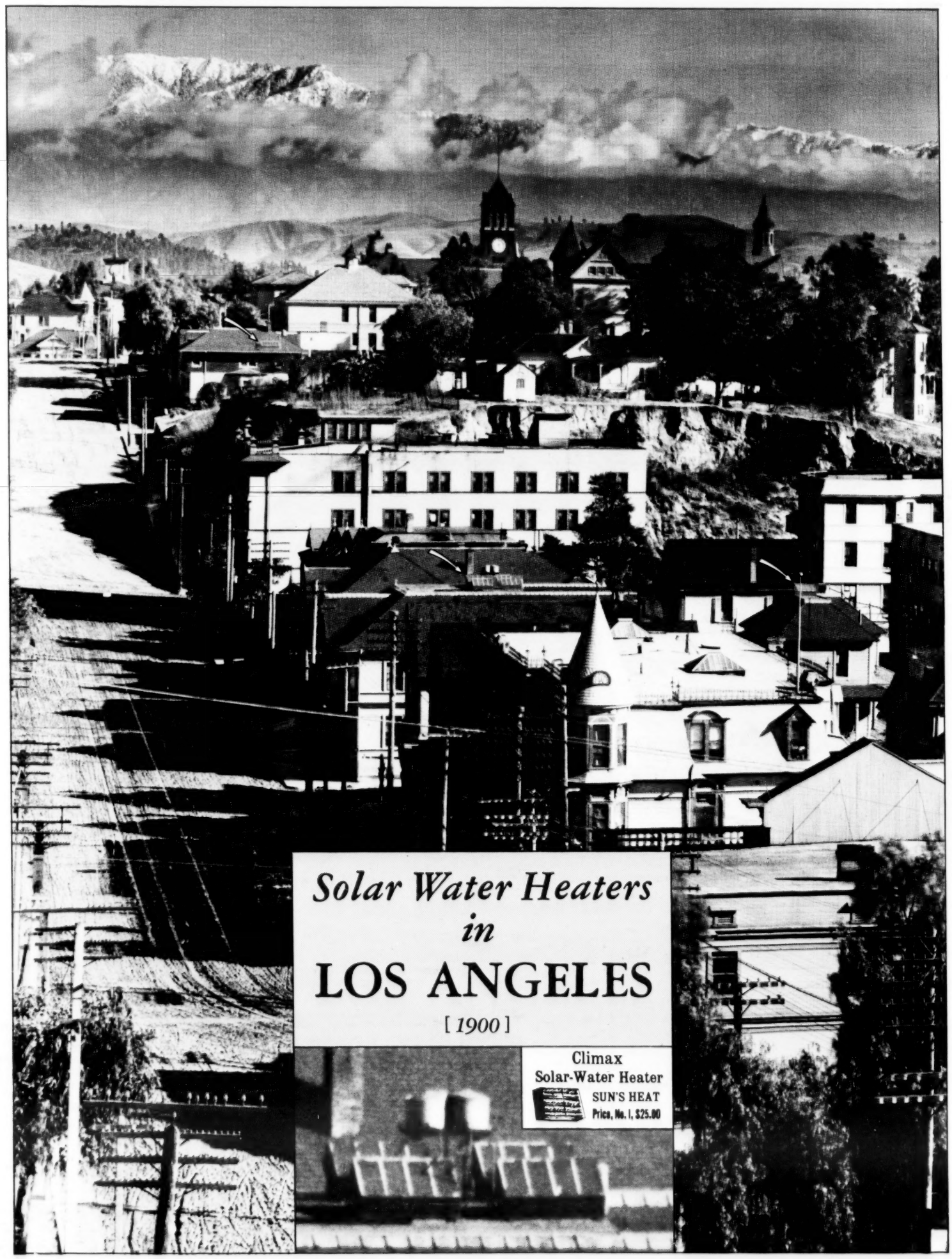
The CoEVOLUTION Quarterly



Olive Street, north of Third Street, in Los Angeles, 1900, showing three buildings using Climax Solar water heaters ($25). California had a major solar collector boom from 1891 to 1930 (details on p. 4). Note clear skies.

Subscription Price: $8 a year

Historical Collections, Security Pacific Bank

August, 1896, PASADENA, CALIFORNIA. That's a Climax solar water heater on the roof. The boy on the porch, Walter Van Rossem, then age 2, now age 84, speaks below on life in that house at 371 Arroyo View Drive. The lady is Mrs. A.C. Van Rossem, Walter's mother. In the background is Brookside Park, the present location of the Rose Bowl.

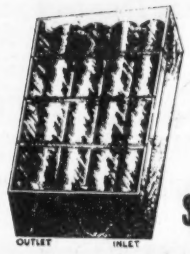
"When we first moved in, there weren't any utilities. We had to do it ourselves with either a wood stove for heating or a gasoline stove for cooking and coal oil lamps. There was no gas, no electricity, no nothing, practically pioneering. The solar heater was up on the roof for heating water. There was nothing uncommon about it at all. I can't remember a house on the block that was built at the time or soon after that, that didn't have a solar heater on it. I don't think anybody would be thinking at the time about paying for heating water if they could get it from a solar heater.

"We were pretty well curtailed for expenses, I know that. Mother's inheritance only amounted to $20 a month. We had to pay for wood for the wood stove and gasoline for the cook stove. The solar heater was so much more economical than buying wood or gasoline to heat water. And it was less work, too. It would take half an hour to get a wood stove warmed up, because it takes a lot of time to heat up a stove made of iron. You can't boil water on a wood stove unless it's hot all the way through because the heat is going into the

Climax Solar-Water Heater

UTILIZING ONE OF NATURE'S GENEROUS FORCES

THE SUN'S HEAT { Stored up in Hot Water for Baths, Domestic and other Purposes.



$25

iron and not what you have on it. Besides, it got the kitchen awfully hot in the summertime. And what the heck, I didn't like to chop wood any better than anybody else did!

"Our solar heater was a square box affair and it had four tanks in it and it was covered by glass. It faced southwest, of course, just the direction the house was. It was our main supply of hot water. The pipes came down through the house from the heater, one went to the bathroom, and one went to the kitchen. There was no excess of plumbing.

"The type of day would mean how hot the water was or how quick it would heat. It usually didn't take long for those tanks to heat up. You see, each tank held maybe ten gallons. You'd be surprised how fast it heated up. I know that on an ordinary sunshiny day everybody in the house could take a bath and wouldn't have any trouble but you had to kind of time when everyone was going to take a bath, you know. By afternoon my mother and our housekeeper would have enough hot water for baths and by evening there'd be enough for us kids. We used to go barefoot all the time and then, you know, we had to take a bath every night, or else!

"Whether we had hot water the next morning depended on how much we used the night before. If we didn't use all the hot water up, it stayed fairly warm . . . warm enough to wash your hands and face. But I don't remember if it was hot enough to take a bath or not. The water was *never* quite hot enough to do the laundry where you wanted the very hot stuff though. It *was* hot enough for a small amount of washing, the things the women wore, but when we did the heavy washing, the stuff we kids wore, our overalls and that stuff, we always had to boil it on the stove. As far as washing your hands and face, bathing, and washing dishes, we never had any trouble at all. I can't remember any trouble. You'd be surprised how much it would heat up even on a cloudy day. In the winter-time usually there was a couple of kettles, one anyway, sitting on top of the wood stove heating; they were used for dishes and a lot of things because the water in the solar heater never got as hot in the winter-time as it did in the summer-time.

"I know when I was walking down to school, Throop, walking down Colorado Street to Walnut Street and then down Fair Oaks, that's where Throop was, as I remember, every house had a solar heater. We didn't think the solar heater was anything marvelous or revolutionary. Everybody had one. It was a thing of the time."

Cover *The photographs came with Ken Butti and John Perlin's article on early California solar technology on page 4. The front cover picture is from the Los Angeles County Museum of Natural History, and the back from the Security Pacific National Bank Historical Collection. The design of the cover is by Bill Johnson, a local* **Rolling Stone** *designer who, to our sorrow, is joining that magazine's misguided move to the Manhattan boondocks.*

—Stewart Brand (SB)

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"COEVOLUTION," our founding idea, is a term coined by biologists Paul Ehrlich and Peter Raven (one each zoologist and botanist) to account for events that neither of their separate disciplines could explain. They noticed that plants they were studying carried large amounts of energy-expensive alkaloids that made sense only in terms of the voracious caterpillars who were put off by the poisonous quality of the alkaloids. Some bugs however (such as the Monarch butterfly caterpillar) adapted to the poisons (such as in milkweed) and kept them in their bodies to foil their own predators (such as bluejays). That's why nobody eats Monarch butterflies, and why they advertise their poisonousness with bright orange and black wings and slow flight, *and* why it is advantageous for other non-poisonous butterflies (such as the Viceroy) to mimic their appearance.

So much for the idea that evolution merely responds to inert processes such as climate. Indeed, a recent theory called the Gaia Hypothesis asserts that climate, and even the chemical makeup of the atmosphere, is highly co-evolved with all the Earth's organisms, including us.

Including us. That's the kicker, because the co-evolutionary idea of life ever more intricately fitting, fighting, cooperating with, and learning from other life only picks up speed and complexity when you mix in cultural species such as we.

The moral of the co-evolutionary perspective is its imperative to always look one level larger and one level finer (at least) than where you are, and to see clear through your cycles. So as you study your soil, your yard, your watershed, your bio-community and human community, your weather, your access to tools, and your night sky, be aware that they are studying you.

—SB

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What's new in 1897: 30% of Pasadena homes have solar water heaters.

Solar Water Heaters in California, 1891-1930

BY KEN BUTTI AND JOHN PERLIN

Copyright © by Ken Butti and John Perlin, 1977.

Sun power is a pure gain to humanity. It subtracts nothing; the world will not be in the least impoverished tomorrow by the fullest use of "visible solar heat" to-day.

We must consider that wood and oil and coal and gas are steadily consumed by use. Not only will the coming generations be less comfortably supplied — a thing most of us care very little about — but the drain to-day may produce distress in our own homes and lay an embargo on our own business to-morrow. Contrast this with the freedom of the people who receive daily gifts of fuel from the Creator, taking all they wish, all they can use, freely.

—C. H. Pope
Solar Heat, 1903

If you're surprised to learn of all this don't feel bad. The very firms who used to manufacture solar water heaters (and now make air conditioners and such) were astonished when Butti and Perlin turned up the solar material in their files. Perhaps this is how things become part of cultural memory, when it is recalled how they link to something that becomes important later.

Worth noting is that the solar boom in California as well as the later, larger one in Florida took place without government funding, ballyhoo, or even notice except for the protection of patents. Building codes were not enforced to either require or make difficult such innovation.

Authors Butti and Perlin, who are young professionals in the solar field, are assembling a book on early American solar experience in California, Arizona, Florida, New England, and elsewhere. They are looking for a publisher.

We are grateful to Alvin Duskin of Pacific Alliance for sending the authors our way. Nice brokering, Al.

—SB

Glass has long been known to act as a solar heat trap; that is, glass permits sunlight to pass through but prevents its heat from escaping. Horace de Saussure, an 18th century naturalist, demonstrated how effectively glass could trap solar heat by exposing to the sun a box with a glass cover. The bottom of the box heated to 228.2° F — 16.2° F above the boiling point of water — more than hot enough for home and water heating purposes. The first commercial solar water heater, a glass-covered box with water tanks inside heated exactly as de Saussure's box, was patented by Clarence M. Kemp, of Baltimore, Maryland in 1891.

Two Californians bought the rights to Kemp's patent and set up business in Pasadena, California in 1895. Because fuel was scarce and expensive (gas for heating sometimes cost six times as much as it does at this writing) many Californians turned to the sun to supply their hot water. In Pasadena by 1897 30% of the homes had solar water heaters. Refinements on the 1891 patent which were made in 1909 resulted in the configuration still in use today — a glass-covered box containing pipes soldered to a metal plate (the metal plate conducted heat to the pipes) through which water flowed to a storage tank. The manufacturer of these heaters had sold over 10,000 by the late 1920's. These solar water heaters, depending on their size, supplied from 40 to 120 gallons of water daily at temperatures from 115° F to 140° F.

The story we present is about an industry that thrived in California and Florida early in the century and somehow became forgotten. A few traces of this story remained in early magazine and newspaper articles, but we acquired the story, by and large, from elderly people. They chuckle when they hear younger people talk about this "new, exotic" solar technology which is no different from equipment they used to heat their water nearly 70 years ago.

THE CLIMAX SOLAR-WATER HEATER—(Patented April 28th, 1891.)

Has been in use since the summer of 1890 and has more than fulfilled the Inventor's expectations. It is made of the best galvanized metal, made for enduring service, and is thought will last for 10 or 15 years or the same as other fixtures in a house, such as Bath Tubs, Ranges, &c. With this heater in service you can go home at night and find hot water for bath ready for you, **on tap** same as the cold water. ☞ You can do without the Range in Summer—this Heater will give the HOT WATER and a Gas Stove do the Cooking, &c.

You have simply to open a cock and **instantly comes the hot water**; there is no **delay—no expense for fuel.** No. 1 size will furnish hot water for several baths.

Can be connected with Iron Pipes or with Hose.

To connect—costs but a FEW DOLLARS.

USEFUL IN THE COUNTRY as well as IN THE CITY.

Pipe connections can be made through the roof, or through the side wall, or through the window frame, easily and cheaply without injury to the room.

This Heater absorbs an extremely large amount of heat from the sun and stores it for bathing, domestic and other purposes. It consists of a white pine box, made very close and tight, and lined with felt paper; this box is covered with a glass sash. Inside the box is placed four cylindrical tanks made of heavy galvanized iron—each holding about eight gallons of water, or thirty-two gallons in all (for No. 1 size). These tanks are painted a dull black and quickly absorb the heat-rays of the sun which penetrates through the glass top. They are arranged in such manner as to secure the greatest results, and keep the ingoing cold water from mixing with the hot water; **the heat grasped by this apparatus is retained for a long time, even if a Storm or Cold Wind comes up.**

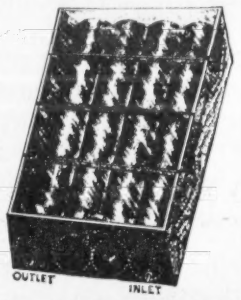


Fig. 1.—No. 1 Climax Solar-Water Heater, glazed and ready for connection.

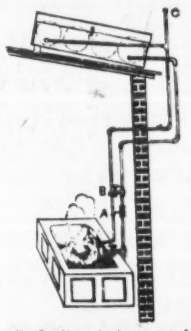


Fig. 2.—Shows heater on a roof with connections for bath.

A.—The cock to let on the cold water which displaces the hot water in heater, causing same to pass down the discharge pipe into bath tub.

B.—The drain cock for removing the water before freezing weather sets in.

C.—The air opening which prevents vacuum in the heater and siphonic action.

The heaters are made with four cylindrical tanks; the water enters the lowest tank at the front end and forces the hot water ahead of it, causing it to leave at the top of this first tank at the far end, and pass into the rear end of the next tank through a tube which runs to the bottom, this compels a displacement in the second tank, the water leaving at the top of its front end and passing into the bottom of the front end of the third tank, thence from the rear end of this third tank into the bottom of the fourth tank, and finally the discharge takes place from the top of the front end of the fourth tank into the pipe that runs to bath-room. By this arrangement of pipes, all air is kept out of the tanks, the water fills them completely, hence **the sun's** heat striking the darkened surfaces of the tanks is directly absorbed by the water. By this arrangement, also, when it is desired to drain the tanks, the drain cock is opened in the bath-room, and the

Fig. 3.—Shows a swimming pool which can be supplied with hot water from "Our Heater."

Fig. 4.—Shows another service it is qualified for

UCSB Special Collection

Pages from the original Maryland brochure for Climax solar water heaters.

Courtesy of Alice Kemp Travers

Clarence M. Kemp, inventor of the Climax, the first solar water heater, patented 1891. He was the owner of C.M. Kemp Manufacturing Company, Baltimore, Maryland (established 1877).

In the late 1800's in California heating water was not a simple task. In the countryside and in many small towns, where the majority of people lived, there was no gas or electricity. People had to rely on the cook stove for hot water. As one homesteader, Luba Perlin (64), recalled:

> You took just one bath a week, a Saturday night deal, because it was such hard work to heat water on the stove. You put pots, pails, anything which would hold water and you could lift (because water is heavy). It took a while for those old stoves to get going because the heat had to first penetrate through the heavy metal.

In cities and towns where there was constant water pressure, residents attached water tanks to their stoves and connected the water heating unit to the household plumbing system, eliminating the constant labor of hauling water to and from the stove. A coil was looped through the firebox of the stove and connected to the water tank. An elderly man, Theodore Hotchkiss (85), explained to us how they worked:

> Once you got the fire going really good, you'd have to wait about fifteen or twenty minutes as the cold water would heat as it circulated through the coil and into the holding tank. The hot water would naturally rise up into the tank (hot water being lighter than cold water). The holding tank was not insulated. That was a real problem because if you didn't use all the hot water, it would lose its heat after a while. So the water in the tank would be cold within an hour or so.

[more →]

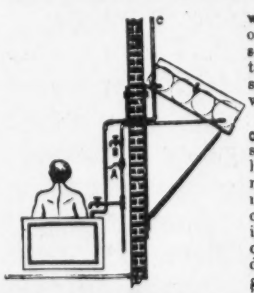


Fig. 5.—Shows a Climax Solar-Water Heater supported by a bracket on the wall.

A.—Is the cock to use when the hot water is wanted. This passes cold water into the heater, displacing the hot water and forcing it through a pipe to the bath tub.

B.—Is the drain cock which is used to prevent freezing.

C.—The air opening which prevents vacuum in the heater and siphonic action.

water is siphoned from one tank to the other, so that they are all emptied except some small quantity in each, which can do no harm.

There is no pressure on the tanks If the sun has set and night has come, hence no more hot water can be made, and the entire contents of the tanks is desired—the drain cock can be used for drawing same—this gives all the hot water in the tanks without any admixture of cold water, this manner of drawing the hot water is unnecessary, except where great demand is made on the heater at night. After use in this way the tanks should be filled again in the regular manner, so that the morrow's sun will find water in the tanks to act upon.

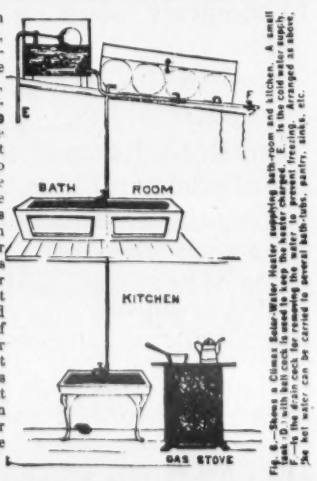


Fig. 6.—Shows a Climax Solar-Water Heater supplying bath-room and kitchen. A small gas, D, with ball cock, is used to keep the heater charged. E. is the cold water supply. F—is the drain cock for removing the water to prevent freezing. Arranged as above, the hot water can be carried to several bath-tubs, pantry, sinks, etc.

THE CLIMAX SOLAR-WATER HEATER

Can be used in some states throughout the entire year, in others from the 1st of April until the end of October; in the northernmost states from May 1st until October 1st.

During the early Spring and late Fall months, while the temperature during the day has been near the freezing point, the heater water has been over 100 degrees, the efficiency shown by the heater is from 60° to 100° degrees greater than the temperature for the day.

☞ The water at times almost boils.

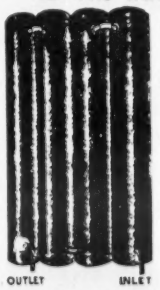


Fig. 7.—Shows the box removed, and the four cylindrical tanks connected.

No.	Size.	Capacity.	Weight.	Price.
1	3 x 4½ ft. x 1 ft. deep	32 gals.	125 lbs.	$25.00
1 A	3 x 4½ " x 2½ "	80 "	225 "	48.00
2	3½ x 5½ " x 1½ "	65 "	185 "	40.00
2 A	3½ x 5½ " x 2½ "	160 "	325 "	70.00
3	5 x 7 " x 3 "	170 "	450 "	135.00
3 A	5 x 7 " x 2½ "	330 "	700 "	200.00
4	6 x 9 " x 1½ "	290 "	700 "	240.00
4 A	6 x 9 " x 3½ "	700 "	1200 "	380.00

Discount Per Cent.

We will make to Order any Size wanted.

On Cloudy Days the Climax Solar-Water Heater absorbs very considerable heat.

CLARENCE M. KEMP, BALTIMORE, MD.

Circa 1900 Southern California newspaper ads for Climax solar water heaters.

In the summer the heat of the stove made living unbearable. "It was torture just to be in the house with the stove on! You nearly died from the heat," confided a stove user. Many did without hot water rather than endure such discomfort.

Gas was available in the larger cities, not natural gas, but a type made from coal. It was produced by burning coal briquets at extremely high temperatures, capturing the flared off gas and piping it for domestic and commercial uses. Called "artificial" or "manufactured" gas, it had only one-half the heating capacity of natural gas and was oily, not a clean-burning fuel.

The common gas water heater in use was the side-arm, so named because it was attached to the side of a hot water tank. The side-arm was not automatic. If you wanted to wash clothes or take a bath, you lit the heater and then waited for the water to get hot as it circulated through the heating coils of the side-arm. The hot water flowed into the adjacent holding tank. When the water in the tank got hot enough, "the tank would start jumpin' and you knew it was time to shut it off." If you forgot, as one plumber (R. Carroll, 84) recalled:

> You might get your hand scalded or get a face full of steam if you opened the hot water faucet. There were times when they would split a tank. We had this one house where this woman started this side-arm up and went up town and when she came back the goddamn back of the building was blowed off!

Not only was heating water difficult, it was expensive in California. California had to import coal and it cost over twice the national average. Artificial gas sold for $1.60 per thousand cubic feet — equivalent to paying $3.20 for a thousand cubic feet of natural gas (since natural gas has about twice the heating capacity of artificial gas), and natural gas only costs $1.60 per thousand cubic feet today in dollars which command less than 1/5th the buying power they had in 1900. This meant the consumer in 1900 had to pay more than ten times what natural gas costs today. As high as the price of gas was, electric rates were even higher, so nobody even considered heating water with electricity. The difficulties of heating water combined with exorbitant fuel prices forced southern Californians, as one eastern journalist observed in **Countryside Magazine** in 1914:

> . . . to take the asset of sunshine into full partnership. In this section of the country where soft coal sells for $13 a ton (and the huge peaches bring only $2 a ton) a builder cannot afford to waste his sun-rays. California is in peculiar need of its solar heaters.

Exposed Water Tank Solar Heaters

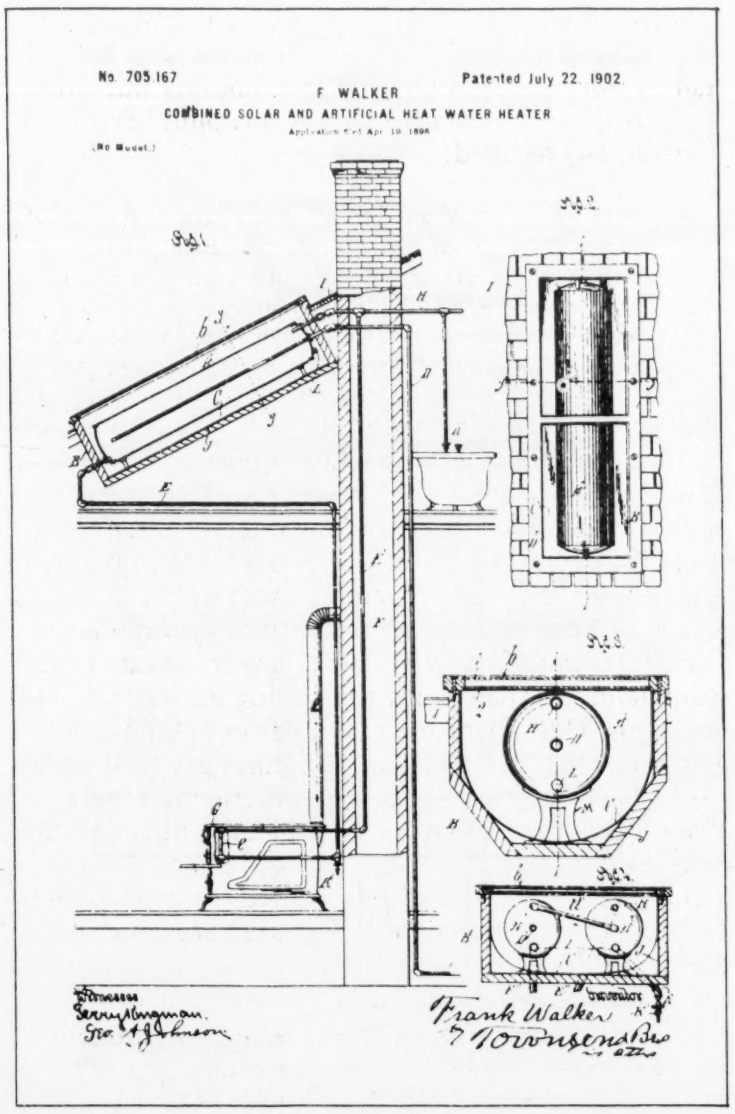
The first solar water heaters were simply water tanks placed upright or laid on the ground where they would best catch the sun and avoid the shade. They were usually painted black. As the tanks absorbed solar heat, the water inside heated. By late afternoon on clear hot days, they supplied early settlers with water hot enough for showering.

Because the tanks were bare and unprotected, at night the water readily lost heat, cooling to air temperature. No usable amounts of hot water could be available until well after noon as it took time for the sun's heat to penetrate such a relatively deep body of water.

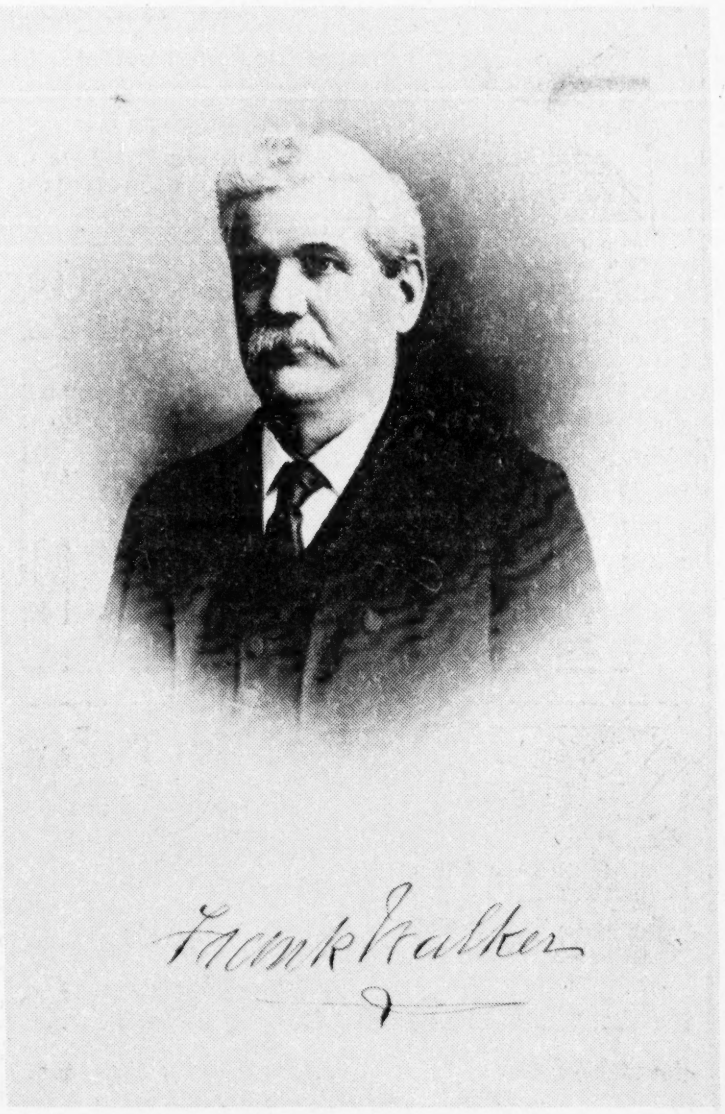
1891 — The Climax Solar Water Heater

Clarence M. Kemp of Baltimore, Maryland improved the efficiency of bare tank solar water heaters by placing the water tanks inside a white pine box insulated with felt paper and covered by glass. Four tanks, made of heavy galvanized iron and painted a dull black, were laid side by side and connected to each other by tubing. The most common tank size was eight gallons. He patented this solar water heater on April 28, 1891, calling his invention the Climax.

The Climax was set up on the roof of a house or shed, or secured by brackets to a wall. It was usually in-



1902 – Patent drawing for Frank Walker's solar water heater showing auxiliary heat source in kitchen stove.



Solar inventor Frank Walker was born in Kincardine, Canada, in 1843 and moved to Los Angeles in 1885 for the climate. Well-regarded in the construction trade, by 1900 he was a member of the Los Angeles city council.

stalled at an angle with the four cylindrical tanks lying horizontally one above the other. When hot water was needed, a valve controlling the flow of cold water from the household plumbing system was turned on. Cold water entered the lowest tank, forcing hot water out of the upper tank into pipes running through the roof, wall or window frame and into the bathtub, sink, or wherever. Another method of installation was to connect the Climax to a reservoir-type system. Opening the hot water faucet drew hot water from the tanks. Cold water from the reservoir replaced the spent hot water and a float valve in the reservoir opened to refill it with cold water.

How many solar water heaters Kemp sold in Maryland is not known, but their manufacture never became his main line of business, remaining just one of many household devices he produced. Kemp sold the exclusive rights to manufacture the Climax Solar Water Heater in California to two Pasadena businessmen, E.F. Brooks and W.H. Congers, in 1895.

No ecological arguments were needed to sell the Climax in southern California. "We didn't think it was anything revolutionary. Everybody had one. It was a thing of the time because it made sound economic sense," explained Walter Van Rossem (86), who had a Climax Solar Heater on his house.

The No. 1 Climax, costing $25 ($162 today), saved its owner about $9 ($58) worth of coal annually. It was even more economical if it was used as an alternative to other fuels such as artificial gas or gasoline. Owners of the Climax enjoyed the convenience of "a 'faucet full' of hot water without so much as the trouble of striking a match," as one journalist commented.

The rights to the Climax Solar Water Heater changed hands several times around the turn of the century. Congers and Brooks had originally bought the rights to the Climax for a mere $250. Just three years later, in 1898, Mrs. Sarah Robbins bought the rights from Congers for $2,500. Sales of the Climax expanded from the Pasadena area to all of southern California. By 1900, over 1600 solar water heaters had been installed.

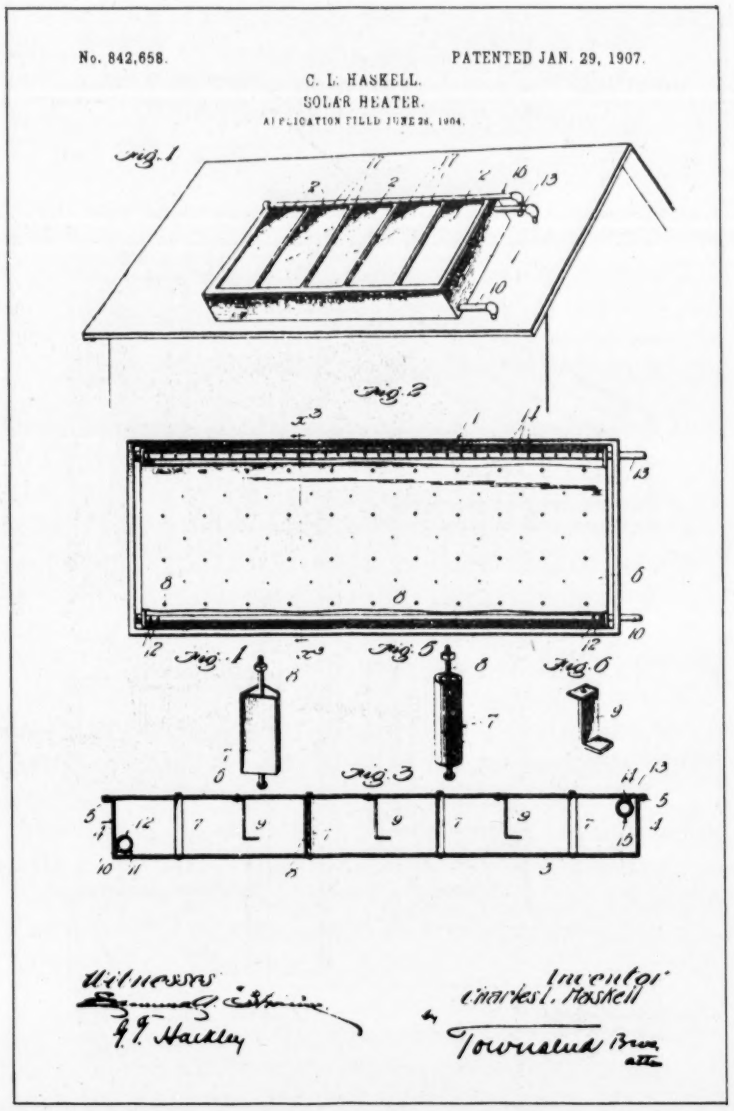
1898 – The Walker Solar Water Heater

Frank Walker, a Los Angeles contractor and realtor, invented a solar water heater in the spring of 1898 which improved upon the Climax design. Walker's solar heater usually contained not more than one or two water tanks rather than four as in the Climax. These blackened thirty-gallon tanks were enclosed in a glass-covered box that was set inside the roof so that the glass top was flush with the shingles. This not

only looked better than the Climax which protruded from the roof, but it insulated the heater better. Walker also placed a polished metal reflector underneath the tank to focus direct sunlight onto it (although later research proved there was little if any additional heat gained through this technique). Walker's design made use of the differences in density between hot and cold water to keep the two from mixing and insure that only the hottest water would be drawn. He placed the hot water outlet at the top of the tank where the hottest (therefore lightest) water naturally rose. The cold water inlet was placed near the bottom where the cold water stayed, never mixing with the hotter water until it too heated and rose. The Walker heater was connected to the conventional water heating system, which provided a back-up and assured his customers hot water at all

Security Pacific National Bank

A Glendale, California, residence equipped with a Walker solar heater (seen at upper right corner of roof).



1907 – Charles Haskell's patent drawing for the Improved Climax.

times. When the sun failed to adequately heat the water inside the Walker heater – for example at night, during extremely cloudy weather, or when it rained – cold water at the bottom of the tank flowed through a pipe to a heating coil inside a stove or gas heater. The water in the coil heated and rose back to the top of the tank, ready for service.

The cost of the Walker heater, including installation, was less than $50 ($340 in 1977). It was more expensive than the Climax No. 1, but many consumers were willing to pay a little extra for the added benefits. James Guinne, a California historian, wrote that Walker's heater was "used extensively in southern California and has proved such a convenience and comfort to so many families."

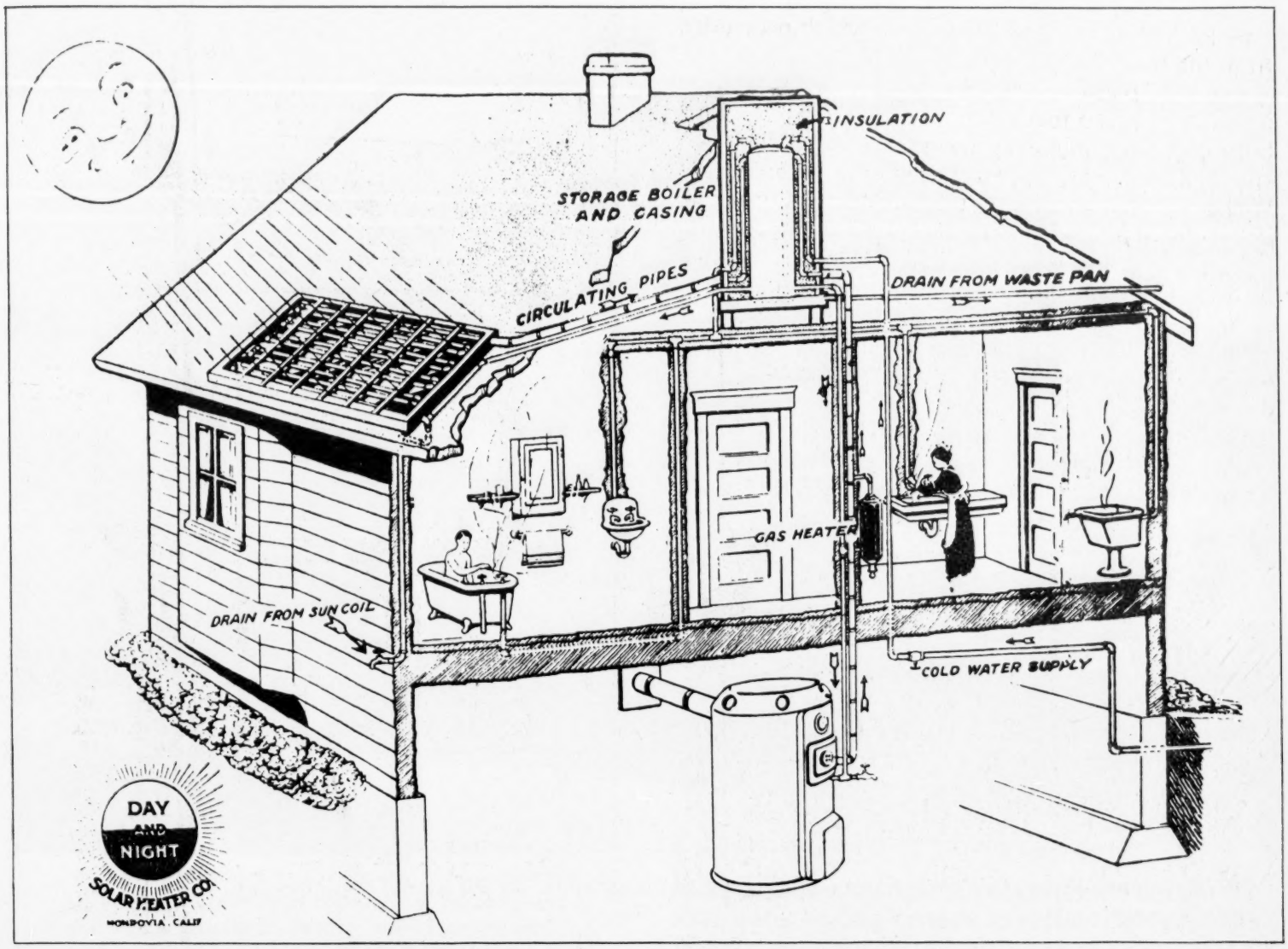
1905 – The Improved Climax Solar Heater

Water in the Climax and Walker Solar Heaters warmed up slowly because it took time for heat to penetrate through the relatively deep body of water contained inside the cylindrical tanks. Charles Haskell, by 1905 owner of the rights to the Climax and Walker Heaters, reduced the depth of tank heaters without changing their volume by introducing a shallow, rectangular design. The broader, shallower tank heated faster than the cylindrical tanks because there was less water per square foot of container being heated. This meant hot water earlier in the day. Haskell marketed his invention as the "Improved Climax."

The flat tank of the Improved Climax was painted black and fitted tightly inside a glass-covered box. Vertical metal braces inside the tank provided rigidity. Cold water entered through perforated pipe extending along the length of the tank's lower end – the perforations divided the water into numerous small streams, distributing the water more evenly than one relatively large stream would. Hot water was drawn off through perforations in the top of the hot water outlet pipe which extended along the length of the uppermost end of the tank. The Improved Climax, like the Walker, was usually connected to the conventional water heating system for auxiliary heat during unfavorable periods.

Usually the company installed the Improved Climax on or in the roof. An installer (James Bailey, 82) explained,

> I'd put it on the side where it saw the most sun. Even on a foggy day, the first one to use it would get warm water. But, of course, on a sunny day it would be much hotter. Why, hell's bells! you'd have to use the cold water with it because you couldn't stay under the shower with just the hot water turned on! It really got hot!



Typical Day & Night installation in a residence, 1918. Note auxiliary gas heater connected to the system.

J. J. Backus, Superintendent of Buildings in Los Angeles, wrote an open letter to Haskell about his Improved Climax heater in a 1907 issue of **The Architect and Engineer of California:**

> I take great pleasure in saying that after a thorough trial extending over a year and a half, our solar heater continues to give just as much satisfaction as when first installed. I am ready to admit that we were unreasonably prejudiced against the heater, and feel that refusing to let you install one in my house for so long a time after you first approached me upon the subject, we lost a great deal of comfort and convenience. It looks to me that all your company needs is a little judicious advertising to increase your business beyond your greatest expectations. Of this we are sure, that every person having a heater will in a way become an advertising agent for your company, for so great will be his satisfaction that he cannot help talking about it.

The beauty of the Climax, Walker, and Improved Climax was their simplicity and effective performance during warmer months of the year, which in southern California was 8 - 9 months of the year. The Climax and Walker models heated water up to 120°F by the late afternoon; the Improved Climax could reach this temperature earlier in the day.

But no matter how well these tank heaters worked, the hot water stored inside the tanks was not well protected. Only a pane of glass lay between the tank and the outside air. During chill cloudy weather, or on cold nights, heat readily escaped and the water cooled. Although the enclosed tank heaters did not cool to the degree that bare tanks did, water was never hot enough for washing clothes in the early morning.

1909 – Day and Night Solar Water Heater

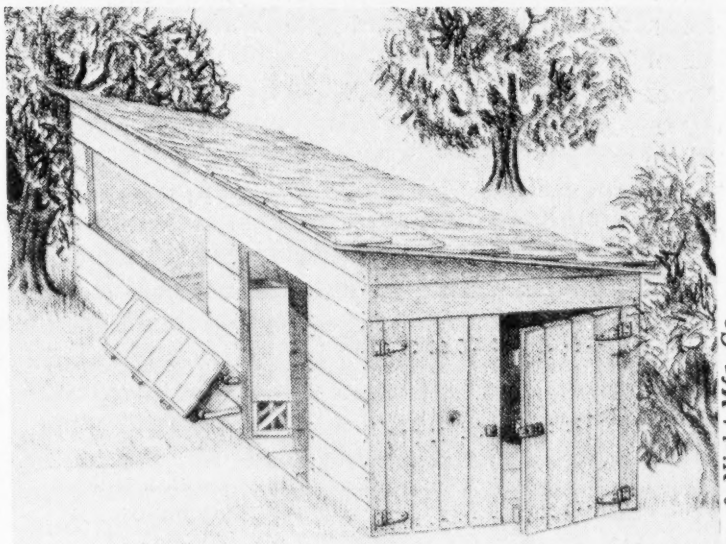
Kemp invented the first commercial water heater, and Walker and Haskell improved upon Kemp's design, but it was William J. Bailey's refinements that revolutionized the industry and created the configuration currently in use. Mr. Bailey, an engineer with the Carnegie Steel Company in Pennsylvania, came out to California in 1908. He rented a bungalow in Monrovia (a suburb of Los Angeles) and on the bungalow's roof stood "one of those old fashioned solar heaters consisting of a tin tank and a sash of window glass." The tank heater performed well during the day, but every night the heated water cooled. Mr. Bailey, formerly employed to upgrade various manufacturing processes for Carnegie Steel, applied his talents to improve upon the shortcomings of tank solar heaters. He divided the solar water heater into two separate units – a solar heat collector and hot water storage unit.

Bailey's solar heat collector was a shallow-glass-covered box, only four inches deep, lined with felt paper. It

Pamona Public Library

1911 – Pomona Valley, California, house with Day & Night installation. At left is what we would call their "organic" garden.

contained 3/4" copper tubing coiled back and forth across a copper sheet to which it was soldered. The copper sheet and tubing were painted black. Compared to the rather bulky tank heaters, "This heater makes a very neat appearance on the roof," remarked Bailey, "being a thin skylight affair." Bailey's solar collector produced hotter water faster than tank heaters because a smaller volume of water was heated at a time. Heat was conveyed to the water by copper, a better conductor of heat than the customary galvanized iron, and a greater surface area per gallon of water was exposed to the sun.



Day & Night Mfg. Co.

1908 – The shed where W.J. Bailey invented the Day & Night solar water heater.

But the major advance was Bailey's heavily insulated storage unit. The sun-heated water was stored in a steel tank surrounded by insulation in a wooden box, where it would stay hot all night, and if necessary, the following day. Bailey could guarantee that when the sun ceased to shine, the water stored in the tank would not lose over one degree per hour.

The storage tank stood above the collector. The bottom of the tank was connected by pipe to the lowest tube in the solar collector; the top of the tank was connected to the highest tube so that hot water entering the storage tank would drive the cold water at its bottom back into the collector to be reheated. The water circulated in this fashion without need of pumps as long as the water in the collector was hotter than the water in the bottom of the storage tank.

A man (William W. Crandall, 86) who installed Bailey's solar heating system described how he went about the job:

> Once you got the tank up in the attic, you'd put it on a stand that was made at the factory. Sometimes you'd have to build a platform for the tank because you'd have to get it above the solar collector for

Pamona Public Library

Sixteen Day & Night solar water heaters in one section of Monrovia, California, home of the Day & Night factory. By this time, 1918, 4,000 of their heaters were in use. Cost, $100 for the 40-gallon model ($600 - 1977).

good circulation. Then you'd build a box around the tank. And you'd make all your pipe connections. Then you'd dump this sil-o-sel (powdered limestone) in for insulation. And if you don't think that was a mess. That powder floatin' in the air and you'd have to spit that stuff out! At the narrowest point, there would be three and a half inches of sil-o-sel, but around the tank at the corners, there would be seven, eight, or nine inches of this powdered stuff. And then over the top. Thoroughly insulated!

Then to pull that solar collector up on the roof! On some jobs, two story houses, with that tubing in the middle and all that lumber and sash, it wasn't light! We had skids, down on the ground and up on the roof. We'd set the solar collector on the skids and put a rope around it. Just by mean strength and awkwardness, we'd put it on the roof.

When you'd have the right exposure, that is a south exposure, that was just ducksoup. I've also installed them on pergolas, I've installed them on the north-side of the house on brackets which gave it the same exposure as you would get on the southside of a house. I've even installed them on the ground. In other words, we'd find a way!

Usually we connected the storage tank to some type of auxiliary heater to insure hot water after several days without sun. Sometimes we'd hook up a small electric insert heater to the storage tank. It would automatically turn on when the water went below the desired temperature. On other jobs, I've connected storage tanks to gas heaters, wood ranges, and even furnaces down in the basement.

The end result of Bailey's creation was "a solar heater that will heat water and keep it hot under conditions that would render most other heaters of little or no use," one newspaperman wrote in July, 1909. "It is the NE PLUS ULTRA of solar heaters."

Bailey saw a large market for his device as there was little change in the energy situation or other water heating technologies in California since the introduction of the Climax. Bailey established his solar water heater business at Monrovia in the summer of 1909. "It was a little outdoor shop on the corner of Lynnwood and Myrtle," an early resident of Monrovia recalled. Bailey called his new firm the Day and Night Solar Heater Company to emphasize the uniqueness of his product – "Steaming hot water from a solar heater day and night!"

The system sold well. The smallest model, a 4 foot by 10 foot solar collector with a 40 gallon storage tank, cost about $100 ($600 in 1977) installed. Customers, however, were willing to pay a higher price than for the Climax because of the greater convenience the Day and Night system offered. No longer did the housewife have to wait until the afternoon for hot water from a solar heater. "Many of our customers are reporting that they are putting out their entire washings early in the morning with hot water from a heater we installed," a Day and Night ad proclaimed. "Ask your neighbor if she can do this with her old style heater."

Many of Day and Night's first customers bought the solar water heating systems to reduce their gas bills. Whereas the Climax cut gas consumption by 40%, the Day and Night saved 75%. The smallest Day and Night system saved the consumer about $25 a year, an annual return of 25% on the investment. Day and Night Heating Systems were even in greater demand in the rural districts where there was no gas. They paid for themselves in one to three years depending on whether the customer was substituting solar for electricity or coal.

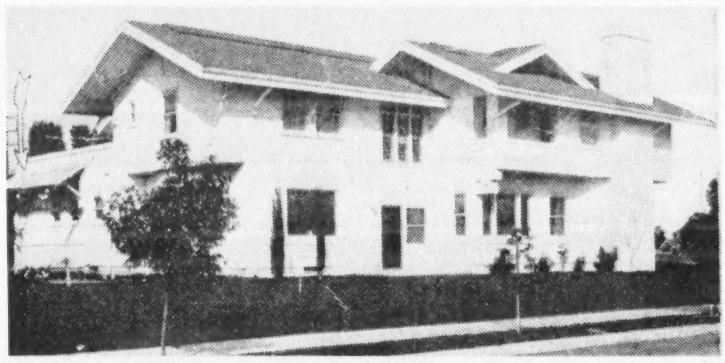
Even though there were "a large number of solar heaters in use throughout southern California," according to **The Architect and Engineer of California** of May, 1907, "and the number is constantly increasing," the solar water heater remained mystifying to some individuals – especially a product that promised sun-heated water day and night. A rancher (Paul Squibb, 83) recalled such skepticism in the area where he lived:

> When they first began putting in these Day and Night jobs, old timers were giggling about how silly they were. They'd say, 'You couldn't get water any hotter than if you just stood a can full of water out in the sun.' One poor guy nearly got the skin burned off himself. He said he'd put his hand in any water heated by the sun and the poor guy got an awful roasting. He jerked his hand out before he lost his skin! He just didn't realize the accumulative effect of the solar heater.

Demonstration models set up at fairs and operating at the Day and Night office verified the company's claims. One advertisement urged skeptics to

"The sun coil in this installation serves as an awning for an outside cellar-way. One of many ingenious installations we have worked out."

Day & Night brochure



"The sun coil here, in addition to supplying plenty of hot water, keeps the kitchen temperature lower by absorbing and conveying to the storage boiler the sun's rays that would otherwise enter the kitchen window."

> Step in (to our office) some cloudy morning following a day of sunshine, hold your foot in the water from the Heater for five minutes, and we will give you the Heater. Cork legs are barred from the test.

With his business growing, Bailey incorporated in 1911 and moved to a larger plant. But in early 1913 his company almost went under because of a disastrous freeze that hit southern California. "Lowest temperatures ever known were reported in some of the orange districts early this morning," read the front page of the **Los Angeles Times** (January 9, 1913). "In some localities the thermometer registered 19 - 20° F with the mercury still falling." The water inside the tubes of many Day and Night collectors froze and the tubes split. "His (Bailey's) telephone rang all night long – irate customers were having problems with water coming through their ceilings," his son William recalled, "so that sent him back to the drawing board to design a non-freezing solar water heater."

Bailey's non-freezing system made the solar collector's circulation system independent of the storage tank's water supply. He connected the tubing in the solar collector to a coil inside the storage tank. A non-freezing solution (usually water mixed with alcohol) circulated through the solar collector and the coil in the tank. As the heated solution passed through the coil, it transmitted its heat to the water inside the tank, cooled, and returned to the solar collector to be re-heated. Another advantage of this independent circulating system was that you could use distilled water in the solar collector. In areas where the water was very hard, this prevented deposits from accumulating and crusting up the tubing.

With the danger of freezing resolved, Day and Night's business continued to flourish. The company expanded its marketing territory to northern California, the Hawaiian Islands, and Arizona. **Arizona Magazine** wrote in 1914, "The sight of the 'Sun Coil' (Day and Night's trade name for its solar collector) is becoming as familiar on Salt River Valley homes as in California where they have been in general use for several years."

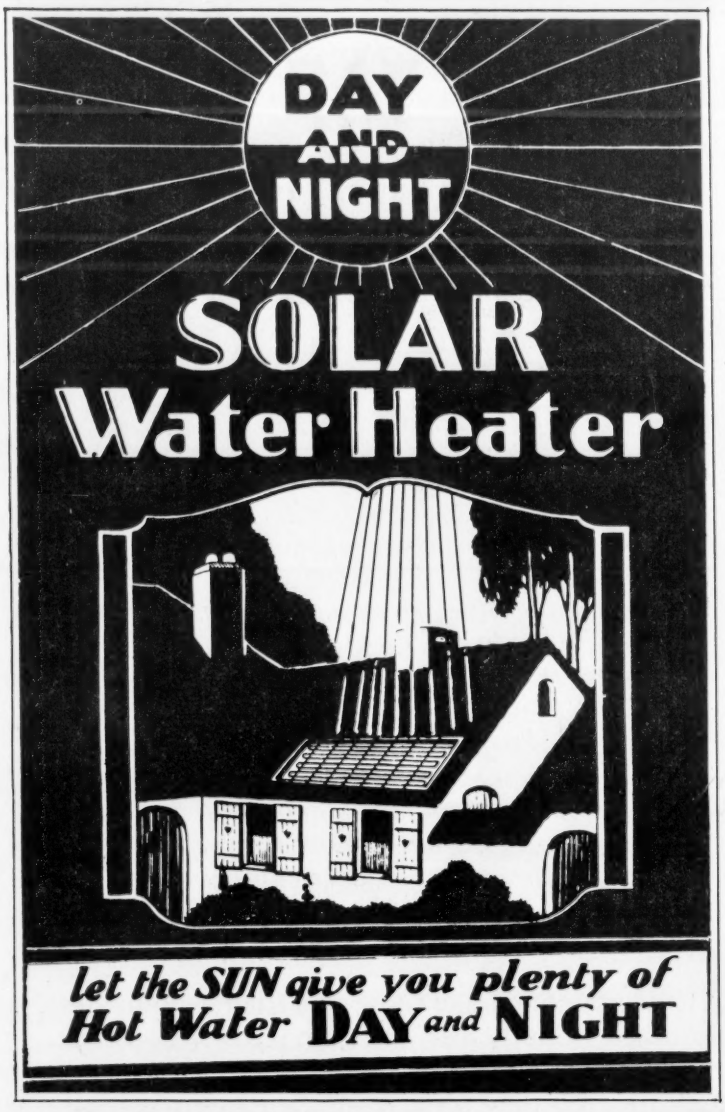
Over 4,000 Day and Night Solar Heating Systems had been sold by the end of World War I, and the solar water heater became synonymous with Day and Night's name. The more efficient coil design forced the manufacturers of tank solar heaters out of business. Day and Night's only competition came from local plumbers and handymen. Solar water heating systems were simple, and "The man who was handy with tools and pipe wrenches could build his own," **The Sheet Metal Worker** commented in 1914. All a plumber or handyman had to do was to see a Day and Night job and then copy it. Out in Ramona, California, one plumber sold collectors made of galvanized iron pipe coiled back and forth on black tar paper. Another equally simple but more effective design built by a Santa Barbara plumber consisted of similarly coiled pipe strapped to copper backing. The storage tank could be any ordinary water tank boxed in and insulated with sawdust, ground cork, rice hulls, or other coarse, dry materials.

Day and Night's sales of solar heating systems peaked in 1920 with over 1,000 sold that year. Then natural gas began to erode the solar water heater market. All major natural gas finds in the Los Angeles Basin occurred between 1920 and 1930, with the exception of the Wilmington Field. Production of natural gas exceeded demand and fuel prices dropped. In 1900, one thousand cubic feet of gas with similar heat equivalency to natural gas had cost $3.20; by 1927 a thousand cubic feet of natural gas cost only $ .90. Networks of new pipelines connected town and rural areas formerly without gas.

Complementing these new gas discoveries was the concurrent development of the automatic storage gas water heater – the type currently in use. The solar technology developed by Bailey led to its invention. Bailey now insulated a gas-heated water tank just as he had the solar storage tanks. He also designed a copper heating element which conducted gas heat to the water more efficiently, just as he had done with the solar collectors.

Bailey's gas heater also had a thermostat that automatically heated water to the desired temperature. "No trouble. No fuss. Simply turn dial indicator," ran a Day and Night ad promoting its new automatic storage gas water heater. "All the hot water you need, heated quickly and kept hot in an insulated tank, constantly awaiting your needs."

Arizona magazine advertisement, 1914



Day & Night brochure, 1923

The gas companies pushed the sale of automatic storage heaters as one of many programs to encourage gas use. "They'd finance gas water heaters on a monthly basis or let you carry 'em for a year or two," retired plumber R. Carroll related. "The gas company would do anything to get you buyin' from them." Through cut-rate prices, easy terms, and free installation service, gas companies added new customers.

The combination of cheap, accessible supplies of gas and the convenience offered by the automatic gas water heater sent solar water heater sales plummeting. In 1926 Day and Night sold 350 solar heaters and in 1930, only 40. But the company's sales of gas water heaters soared. "Steaming hot water day and night" now meant water heated by gas. Day and Night became one of the largest producers of gas water heaters.

As to the fate of the solar water heater – in 1923 Bailey sold the patent rights on the heater to an entrepreneur in Florida for $8,000 ($24,000, 1977) and an Oldsmobile touring car. This entrepreneur, according to Mr. Bailey's son, "made quite a bit of money on the solar heater because it had even a greater adaptability in Florida than it did in California." In southern Florida the solar water heater saw its greatest success. Water heating was expensive and the solar heater offered an economic alternative. By 1941 at least 60,000 solar heaters were installed, but war came, Uncle Sam froze the use of copper, and the solar water heating industry ground to an abrupt halt. The solar water heating industry resurged after the war, but cheap electric rates stymied its growth. The once thriving solar heater industry, by 1955, was reduced to a small service business.

In California Day and Night continued building and selling solar water heaters, although at a greatly reduced level, until the beginning of World War II. The last production run was, as William J. Bailey, Jr. recalled, in 1941:

> It was for Pan American Airlines, who bought a big lot of them and had intended to ship them out to the South Pacific to put them on Canton Island. That was the time when Pan American flew the old Clipper Ship runs to Australia, and Canton Island was the stop-over point. They wanted hot water there and using solar was the only way they could get it. Those water heaters were on the dock in San Francisco, ready for shipment, when Pearl Harbor came along. They were never shipped. ■

NOTE TO READER – If you have any knowledge or experience of early American solar technology, we would be grateful to hear from you care of this magazine.

–KB and JP

What's new in 1920:

German youth is discovering the Wisdom of the East, attacking materialism, lauding spontaneity, returning communally to the country, and scorning politics (which soon will have use for their energetic ignorance).

The Wanderwogel

BY JOHN DE GRAAF

"I had been privileged to walk with the youth of another world . . . the apostles of a wholly new life for young and old alike . . . With their spirit, the old heaven and the old earth – of suspicion and selfishness and hate – will pass away."

– Stanley High
The Revolt of Youth, 1923

The words sound like those of a Charles Reich just returned from the perfumed smoke of Woodstock, feverishly bent on extolling the new American counterculture. But they come from the pages of a volume half a century older than **The Greening of America**. I found the book by chance while looking for Wilhelm Reich's **Mass Psychology of Fascism** in a Wisconsin library. Its title, **The Revolt of Youth**, intrigued me, and so I became the first person since 1940 to check it out. I noticed that it had been read with interest ten years after its publication in 1923, then left almost totally untouched. Stanley High (he later became a biographer of evangelist Billy Graham) glowingly records in his little book the youth culture which followed the horrors of World War I. Though he speaks of many countries, it is Germany's youth who receive his strongest praise.

Hindsight brings something profoundly disturbing to High's descriptions. "The youth of the world," he writes, "are pointing the way to the new day which statesmen have failed to bring . . . a new internationalism is appearing." In Germany, the "revolt of youth" is "the hope for the future," with a new counterculture rising against the "soulless materialism" of industrial and commercial society. "From every city throughout the land one sees this flight of German youth into the hills and the open country." "Led by a battered assortment of guitars . . . wearing wreaths of wild flowers, the old guitars gay with blossoms," Germany's young "wandervogel" (wandering birds) spread love, peace and joy across the land. "Long forgotten festivals were revived in great open air fetes," High writes, "and the back to nature spirit began to appear." Natural camaraderie prevails among these German youths, with freedom of sexual companionship, "the girls in peasant dress," the boys looking "motley."

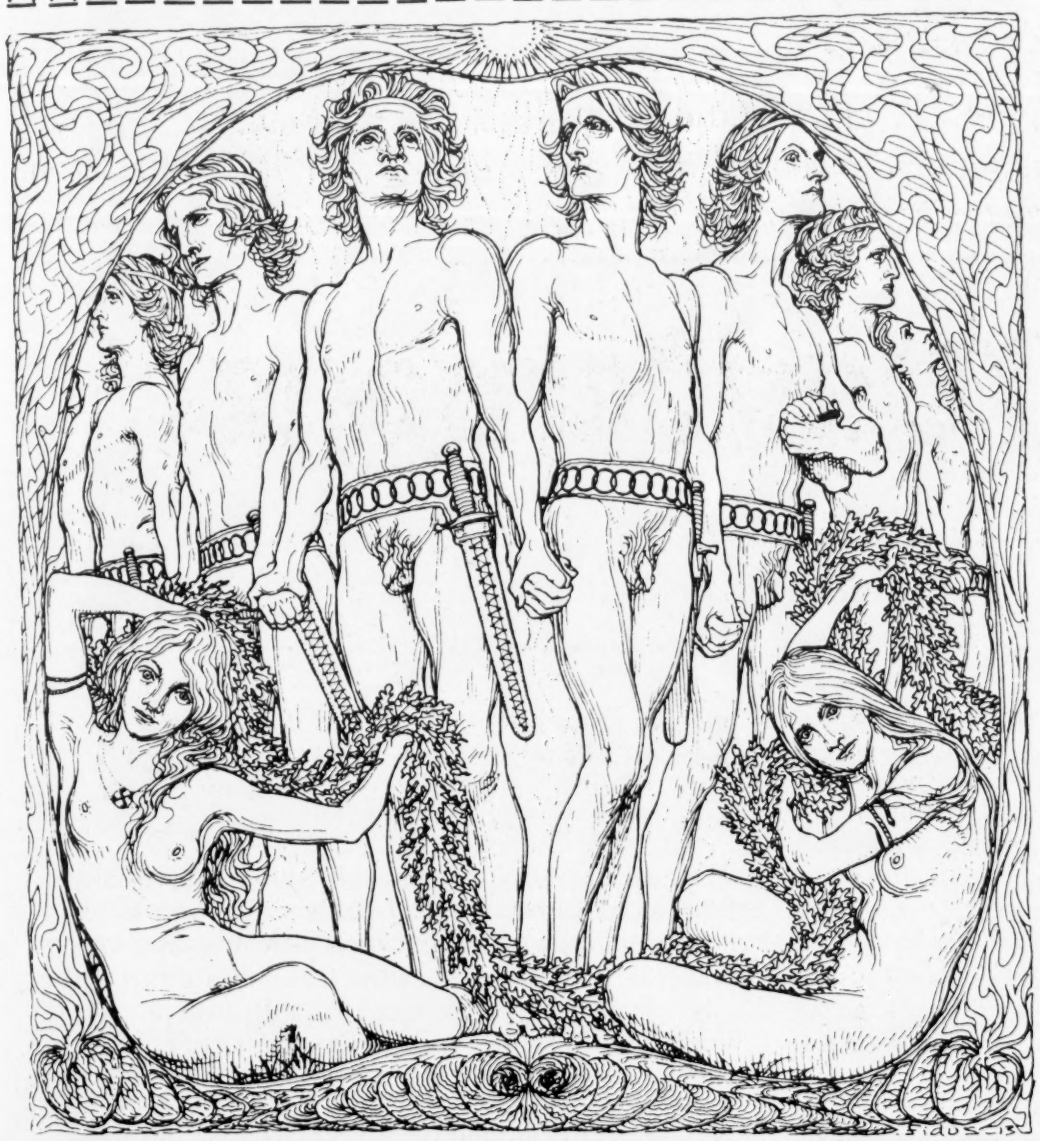
"Nothing," says High, "is so roundly hated as the imposition of conventional authority and nothing so loved as nature." High describes the co-ops, free schools and folk masses ("there is an inexplicable reaction against conventional Christianity") of the German youth movement, with a clear belief that the Golden Age of humanity is dawning. And there is more than a touch of glee in his observation that these young Germans are openly apolitical. "The political interests are tending to disappear, the great spiritual forces are on the ascendancy," he writes. "Always the members stood against any political alignment."

High remarks in passing that some observers suggest these pacifistic, happy-go-lucky chaps might soon be militarists once more, bound for the battlefields of "another war to win again a place in the sun." Not a chance, he says. The greening of Germany has taken deep roots, and the youth movement is "too spontan-

John de Graaf is no aging academic. He's young (30), associated with a radio station in Duluth, Minnesota, (WDTH Public Affairs Director), and sufficiently counter-cultural to be startled by what he saw in the mirror of German youth, 1896 to 1944. The first version of this article (shorter) appeared as "The Dangers of Counterculture" in the March-April, 1976, **North Country Anvil** *($6 for 6 issues from Box 37, Millville, Minnesota 55957), and was reprinted in a counter-culture magazine in Australia (I've forgotten which one) and England (***Undercurrents** *21).*

Readers might be interested in a new entire history of counter-culture, including the Wandervogel, *called* **Bohemia – The Protoculture Then and Now**, *by Richard Miller, 1977, $7.95 from Nelson-Hall, Chicago. Mr. Miller helped us find the photos illustrating the article, which are from* **Young Germany**, *Walter R. Lagueur, 1962, $7.50, Basic Books, New York, and from* **Die Jugend Des Fuhrers Adolf Hitler**, *1942, Erwin Skacel, Leipzig.*

–SB



HOHE WACHT

1913 – Drawing by Fidus from the **Freidentsche Jugend**, *the report on the Hohe Meissner mountain meeting of grand alliance among all the* Wandervogel *groups. The graphic content and line is eerily similar to posters for the 1967 "summer of Love" Human Be In, a Gathering of the Tribes, at Golden Gate Park, San Francisco. Both events, called to unify a movement, were culminations which led rapidly to the dismemberment of the movements.*

eous and free from the direction of the forces which would be most interested in such a development to give adequate basis for alarm." Yet, sixteen years later, young Germans unleashed the horrors of their blitzkrieg upon the world for the glory of Adolf Hitler.

I could not help, in reading **The Revolt of Youth**, noticing parallels between High's young Germans and our own counterculture. But, like Charles Reich, High seemed so starry-eyed and his observations so devoid of any historial perspective, that it would have been easy to write the similarities off as coincidence had I not looked further into the German countercultural phenomenon. The parallels only hinted at in **The Revolt of Youth** are broadened and strengthened in the course of more thorough investigation.

During the final quarter of the 19th Century Germany underwent a vast and rapid process of industrial development. Its population left the countryside for mushrooming urban centers dominated by the smoky pall of heavy industry. Fueled by a providential bounty of resources and state economic intervention, this sudden and enormous economic boom produced a materially comfortable populace, including a prosperous middle class, and "compared with the standards of other Western countries, the working classes too had little to grumble about, at least from a material point of view."[1]

But, writes H.W. Koch of the University of York, "It was precisely this rapid thorough-going industrial and technological change that was to be a major factor in producing a new air of unease among youth . . . However, in the main, the growing wave of arguments against industrial modernity possessed more of the character of an emotional outburst than a rational analysis of the condition of society. And in that emotional reaction against industrial modernity lay, besides much else, the origins of the German Youth Movement, and ultimately, in its most perverted form, of the Hitler Youth. It was an enthusiasm which rejected the rootless objectivism of the intellectuals and the matter-of-fact methodology of the natural sciences, since theirs – so it was alleged – was the responsibility for the ugly factory system which had once again reduced the free individual to a state of impersonal servitude."[2]

BEFORE THE FIRST WORLD WAR

In 1896, the Wandervogel youth movement was formed, with the children of suburban Berlin setting off for the woods in retreat from a life which, however prosperous, had lost its meaning. These youths, many with long hair, were joined by various other groups of young Germans who sought in some way to protest the staid and boring life of their parents. The leaders of this movement, which grew rapidly in the early years of this century, were visionaries, ideologically pacifistic and internationalist, however much they detested the practical politics of the German Social Democratic Party. Perhaps the foremost among their leaders was Gustav Wyneken, who promoted the concept of a "Jugendkultur" (youth culture) free of the pernicious influences of commerce and the German state. It was Wyneken who keynoted the huge gathering of thousands of German youth at a mountain called Hohe Meissner in October of 1913. "Above all things," Wyneken said in his passionate denunciation of war and prophetic description of Nazism, "we detest the unfruitful patriotism which immerses itself in words and emotions, which at the expense of the historical truth, derives its enthusiasm by looking backwards."[3]

[more →]

1898 – The shorthand study circle of Steglitz Grammar School (a semi-rural middle class suburb of Berlin). The group's founder was Herman Hoffman, 21, third from the left, but it was Karl Fischer, 19, third from the right, who became a leader a few years later of the Wandervogel *movement, attracting tens of thousands of German youth, that grew out of the mountain hikes of this tiny club.*

But the young people who cheered Wyneken that rainy evening knew nothing of history, nor of the techniques of brainwashing. The only war worth fighting, Wyneken had said, would be one to abolish the old bourgeois commercial society and bring a better world into being. Sadly for the young Germans, it was just such a war the industrial masters of their nation would convince them they were fighting, as only ten months later, in August of 1914, they marched to the trenches and the graves.

AFTER WORLD WAR I

Despite some early successes, defeat shattered the exultation of the young Germans in the First World War. And as their uniforms lost the power early victories had brought, they turned increasingly to mysticism – the search for power external to the objective world. "In 1917," writes Walter Laqueur (whose **Young Germany** is probably the definitive work on the subject, at least in English), "there was another rediscovery of the wisdom of the East; soon everybody was talking about Taoism, Zen Buddhism, karma, etc." The intellectual heroes "pioneered in the discovery of the Eastern soul."[4]

After the ignominious German defeat, with reparations due the victors and rampant inflation pauperizing the German populace, a mood of pessimism – the thought that not just Germany but the West, and all of Western civilization, had failed – swept the country, exemplified in Oswald Spengler's **The Decline of the West**, published in 1918.

The mood of despair and mysticism was widespread. "Germany of 1920," writes Laqueur, "was the heyday of Dada and occultism, when all kinds of curious sects spread and prophets of the most fantastic causes found a ready response." Many German youths joined the "new religious and occult sects whose prophets grew like mushrooms" after World War I. The popular magazine **Free German Youth** devoted numerous articles to Taoism and the Bhagavad Gita.[5]

The general upswing in the German economy and relative prosperity which lasted from 1924 to 1929 lessened the mood of mysticism among young Germans and reawakened a more practical, though non-political, countercultural response among middle class youth. The movement, much in the style of Wandervogel, sought to escape industrial society by means of a return, in small groups, to nature and the adventurous spirit. Its activities provided great emotional experiences. Meetings included singing, storytelling, readings discussion of movement aims and an emphasis on "personal" problems. It attacked the materialism, sterility and lack of ideals of German society, but hoped these could be overcome by "the power of all-embracing love" and the "Inward Way" to enlightenment.[6] Change people, the German counterculture believed, and then society will change. "The youth movement," Laqueur stresses, "was anti-political" and "tried hard to avoid political commitments." With reference to politics, the most often repeated phrase was a clear expression of the dominant sentiment: "Our lack of purpose is our strength."[7]

It isn't that the post World War I German counterculture didn't seek new institutional arrangements however. After 1919 there was a campaign to establish communal colonies in the countryside which lasted for a few years. Students formed co-ops to

provide the necessities of life at lower cost. And the German Free School Association battled the "Prussian spirit" of authoritarian rote learning which prevailed in the public schools. The group's founder was Gustav Wyneken. "We feel unfree and hampered," wrote Wyneken in his paper *Der Neue Anfang*, "in the family circle, where we are never taken seriously and where older people never appreciate the needs of our body and soul. We will no more stand the buffoons of the desk who compel us to sit bent over our books . . . who hammer their nonsense into us in a mechanical and soulless way. We will no more go back and perish in that prison which people call 'school'." Wyneken's schools preached equality of the sexes. Forty percent of their students were Jewish.

Moreover, and like our own counterculture, German youth again tended to pacifism and internationalism. The widely read journal **Junge Menschen** "combined pacifism with a general appeal to life reform," writes Laqueur.[8] "Life reform" meant such things as a whole foods diet, exercise, and in some cases, vegetarianism.

A favorite author of the period, as with the American counterculture, was the erudite and imaginative Hermann Hesse, who had left Germany for Switzerland in 1919. His widely read novels, **Demian** (1919), **Siddhartha** (1922), **Steppenwolf** (1927) and **Journey to the East** (1932), dabbled in psychoanalysis, Eastern mysticism and romantic criticism of bourgeois society. Though a philosophical socialist, Hesse maintained and encouraged distance from the world of real politics. "I am unable to join any opposition movement . . . because I regard the injustices of the world as incurable," he wrote. "I have no taste for politics; otherwise I would have become a revolutionary long ago . . . Humanity and politics are essentially incompatible . . . The less able I am to believe in our epoch and the more arid and depraved mankind seems in my eyes, the less I look to revolution as the remedy and the more I believe in the magic of love" – so Hesse spoke for the ideology of the German counterculture.[9]

The sensuous wanderings and philosophical ideas of Hesse's **Narcissus and Goldmund** (1930) correspond more closely to the ideals of Wandervogel than to the realities of the middle ages, where they are to have taken place. "Money and a settled life," thinks the young protagonist Goldmund, lead only "to a drying up and a dwarfing of one's inner senses." "How lazy, spoiled and fastidious these fat burghers were," he thinks. "Oh, the roaming life, freedom, the heath in the moonlight, the animal tracks peered at attentively in the gray-dewed morning grass. Here in the city, among the well-established burghers, everything was so easy and cost so little, even love. He had had enough of it. Suddenly he spat on it. Life here had lost its meaning."[10]

Clearly, Hesse and many other humane writers and leaders like him, could see the dangers of fascism on the horizon. **Narcissus and Goldmund** contains a thinly-veiled prophetic warning about the dangers of anti-semitism in the story of Goldmund's meeting with the young Jewish girl Rebekka, whose father has been killed in a pogrom.

ENTER THE NAZIS

What happened to this idealistic, emotional, humane and internationalist counterculture which moved observers like Stanley High as our hippies moved Charles Reich? It did not survive the onslaught of the Nazis. "Of the factors responsible for the rise of Nazism, none was as important as the depression," writes William Allen in **The Nazi Seizure of Power.**[11] The collapse of the world economy after 1929 left people looking to the extremes – Left and Right – for solutions to the economic problem. In July of 1931 the major German banks began to close as U.S. banks began calling in loans made to Germany. Thousands of German workers were idled by unemployment. And as welfare costs rose, tax sources dried up, resulting in a fiscal crisis of the state. Corporate profits taxes in 1932 yielded only half the revenue they had in 1931.[12]

"The despair of the unemployed," Allen writes, "not only terrified and repelled the middle class, it also destroyed the self-confidence of the workers," and "the general economic situation rendered the Socialists helpless. With thousands of workers waiting for every job, a strike would have been impossible."[13]

During this period both the Communists and the Nazis gained at the expense of the ruling Social Democrats. Workers gravitated to the Communists, the middle class and the industrial elite to Hitler's NSDAP. The Nazis appealed to the middle class as arch enemies of Marxism. They even attacked the German cooperative movement as "Bolshevistic" and were aided by merchants in crushing it.[14] Economic troubles hit the lower middle classes – shop keepers, artisans, teachers, civil servants – and "the spectre of white collar poverty became a reality." Both Nazis and Communists proposed greater government intervention in the economy to end the depression, but the Nazis gained the support of all sectors except the industrial workers by playing on fears of class conflict and the Russian bogeyman – Bolshevism. "Most of those who joined the Nazis did so because they wanted a radical answer to the economic problem," writes Allen, but not one involving class struggle. "The NSDAP was first and foremost an anti-Marxist party," seen by Germany's middle classes as patriotic, anti-socialist and religious, yet radical. The Nazis' "best drawing cards," adds Allen, "were religion and nationalism."[14]

Hitler's rhetoric welded the suffering lower middle class to the rich by promising order and singling out a scapegoat for the economic crisis – Jewish financial interests, and by extension, Jews in general. And the Nazis did not neglect the emotional yearnings of German youth. Hitler talked of a mystical community, the "Volksgemeinschaft" populated by "the folkish, organic, God fearing man."[16] Poetry, music and art played important roles as fascism emphasized non-rational needs for spiritual unity. "Fascism," writes University of Wisconsin historian George Mosse, "claimed to re-establish the true creativity of man which had been stifled" in modern society."[17]

"The Social Democrats failed to comprehend the nature of the Nazi appeal," adds Allen. German

communist intellectuals like Wilhelm Reich and Ernest Bloch warned that the Left was not relating to the psychological yearnings of youth, that the Nazis had taken over the spiritual and Utopian realm, and that this fact would be decisive. Their warnings were largely ignored.

HITLER'S COUNTERCULTURE

Hitler did not simply steal the whole of the youth movement away from its earlier humane aspirations through his appeals to the folkish and organic. He despised the pacifism and internationalism of the movement and leaders like Wyneken. Nazi opinion generally was that the youth movement did more harm than good. But Hitler formed an alternative youth movement which won adherents because it copied the trappings and rhetoric of the earlier counterculture, while adding a strong dose of Nazi discipline and ideology. Meanwhile, he sought out the older leaders of the movement for persecution and imprisonment. Many fled. Most simply acquiesced to the Nazis, responding as people who still retained too much humanism to be guards at Auschwitz, but who did not dare to fight Hitler either. Because they had so long been unconcerned with practical political questions, they were impotent when disaster struck.

The Nazi rhetoric of the "organic folk" did serve to win the allegiance of thousands of former members of the German counterculture. "People who had been radical pacifists after the First World War now suddenly became eager to have a second go against England," writes Laqueur. By the midthirties all that was humane in the German counterculture was gone. Hitler ruled supreme. The deluge had begun. The words of love and peace, of brotherhood and innocence, died in the bloody ditches of the Second World War.

SOME GENERAL PARALLELS

I shall attempt to separate the parallels between the demise of the German counterculture and the rise of Nazism and our own situation into some general categories.

First, economic depression was the soil in which Hitlerism took root. The Weimar Republic, which Hitler abolished in 1933, was, according to Hungarian scholar Mihaly Vajda, the most pure form of liberal democracy ever to exist, providing power to the classes of German society in rough proportion to their actual size, and achieving a great deal of social legislation of benefit to the poor. But the depression threatened the German class structure as it exacerbated the struggle over shares of a dwindling economic pie. The victory of Nazism aimed at and achieved a suppression of the working class in the interests of the wealthy and middle classes.

Faced with a threat to its power and profits, the German bourgeoisie was willing to let Hitler toss democratic pretense aside. According to T.W. Mason, the leading industrialists opted for fascism "for the sake of their own further economic development. Their desire for profit and expansion was fully met by the political system" of fascist dictatorship, while at the same time, "the Nazis captured the allegiance of the troubled and confused middle class."[18] The economic powers that be, the German experience suggests, will not refrain from casting democratic principles aside when they feel threatened.

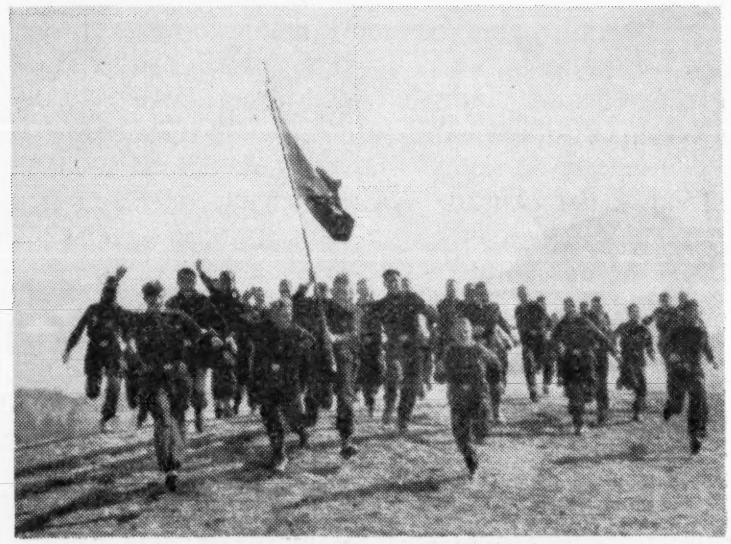
The U.S. defeat in Vietnam at the hands of an unexpectedly powerful liberation movement, terribly weakening U.S. capital's ability to secure areas for investment and resource extraction in the Third World, coupled with our growing economic problems of inflation and unemployment and our urban fiscal crises, provide similar soil and necessity for parallel antidemocratic efforts on the part of our own corporate rich. Watergate and wiretapping schemes have indicated a new willingness to forget democratic pretense in the interest of assuring stable relations of power. FBI provocateurs planted weapons and encouraged bombings as part of the COINTELPRO operation to destroy the American left. Similarly, in Hitler's Germany the Nazis staged "discoveries" of weapons to justify repression. And then as now, "the newspapers reported whatever they were told by the police."[19]

"EXCESSIVE DEMOCRACY"

An ominous sign of a growing antidemocratic sentiment among American corporate strategists is a volume called **Crisis of Democracy**, recently published by the Trilateral Commission. Trilateral is a group of corporate heads, bankers, academics and public officials from the U.S., Western Europe and Japan, formed by David Rockefeller of the Chase Manhattan Bank to encourage cooperation among the world's leading capitalist powers. A chief concern of the Trilateralists is the "crisis of confidence" in business and government on the part of the American public, as revealed by popular opinion polls. This crisis is coupled with a desire for increased participation by average Americans in government decision-making, and demands on the Federal treasury to serve the interests of low and middle-income people, not only the rich – demands for tax justice, for example.

These two "crises" are extremely frightening to Harvard professor Samuel Huntington, a Trilateral academic who was formerly an architect of the U.S. air war in Indochina. Huntington calls this new concern for social and economic justice "excessive democracy" in his Trilateral report, and suggests that popular democratic rights, including freedom of the press, will have to be curtailed in the "national interest" – that is, in the interest of the current economic status quo. What these worries on the part of Trilateral strategists suggest is a forthcoming corporate attack on democratic principles and the living standards of average Americans. If the people do not accept a program of austerity for themselves and vastly increased profits for the corporate elite, then democracy has become "excessive" and a new system is needed. "It will be a hard pill for most Americans to swallow," editorialized **Business Week** in 1974, "the idea of doing with less so that big business can have more." But the people must be made "to accept the new reality."[20] And if they do not?

Secondly, as Hitler used the Versailles Treaty, which the victorious powers imposed on Germany after



1942 — Hitler Youth. Caption: "Sie hilft Jungen formen, nach dem Willen des Fuhrers: schlank und rank, flink wie Windhunde, zah wie Leder und hart wie Kruppstahl."

World War I, to play on the Germans' sense of being unfairly treated, so does the U.S. corporate elite emphasize U.S. defeats in the United Nations and OPEC price increases to play on Americans' sense that we are a generous people who get nothing for our favors. And the Pentagon continues to warn of Soviet arms buildups as a justification for its own steadily increasing "defense" spending, aided by a new and powerful lobby of hawk politicians and old line labor leaders, which calls itself the Committee on the Present Danger. Of course, this kind of expanding militarization has its Nazi parallels too.

SCAPEGOATING

Meanwhile, there are dangerous scapegoating portents in the air, in particular Anita Bryant's crusade against homosexuals. According to Laqueur, part of the Nazi attack on the German counterculture consisted of accusations of homosexuality. The antigay campaign has reached dangerous heights, particularly in Minnesota where I live. Here a demagogic, right-wing Democratic legislator named Florian Chiemelewski has introduced legislation to put convicted homosexuals into concentration camps.

The leaders of the anti-gay campaign are in general religious fundamentalists whose cause has surely been aided by the dogmatism of the "Jesus Movement" which has flourished among former members of the American counterculture. This Jesus Movement is similar to the fundamentalist Protestant youth groups or "Bible circles" which flourished in Germany between the two world wars. These groups were particularly susceptible to Hitler's anti-semitism and anti-Bolshevism. By 1931, Laqueur estimates, more than 70 percent of these "Bible circles" were openly pro-Nazi.[21] One of the groups associated with today's "religious revival" among the young, the Reverend Sun Myung Moon's Unification Church, builds its entire ideology on a fierce anticommunism, with some help from the South Korean CIA. Such scapegoating movements, blaming homosexuals or communists or Jews for current economic and social problems, can escalate rapidly in their appeal if they are given support by corporate interests which feel a need to use them. "Abstract anti-semitism," writes Allen, "in the form of jokes or expressions of generalized distaste was prevalent in Germany approximately to the extent that these things exist in contemporary America."[22]

New upsurges of open Nazi and Ku Klux Klan activity – Nazi bookstores in San Francisco, Cleveland, Chicago, stormtroopers in Minneapolis, a KKK rally in Plains, Georgia, etc., – are also frightening, but an American fascism is unlikely to win many adherents by copying such discredited symbols as the swastika and burning cross. Such groups were quite active in the U.S. in the thirties without winning a mass following. An American fascism would have its own symbols. It would probably rely more on sophisticated media manipulation than naked terror.

ANOTHER DISTURBING PARALLEL

Sadomasochism appeared among the bitter and increasingly impoverished German middle classes as a confused, unconscious response to their impotence in shaping the real conditions of their lives. A barely conscious knowledge of their own impotence led the middle classes to a kind of masochistic self-hate which, as is usually the case, was also projected outward at targets presumed to be even weaker – the Jews, or for German men, the female population. These impulses were fertile soil for the cult of the male warrior hero which the Nazis promoted.

A similar phenomenon appears in contemporary America, especially among teenagers who see no productive and fulfilling work possibilities on the greying economic horizon. Increasingly, "youth culture" in the United States is becoming attracted to violence (often sexual in nature). The repressed rage against barely conscious impotence is expressed in the aggressiveness and machismo – as well as the pounding dissonance – of contemporary hard rock, and in the violence at performances given bloody birth at the 1969 Altamont Festival ("the day the music died" in the words of Don McLean).

One sees in the new teenagers a "counterculture" influenced more by aggressiveness than by the pacifism of the sixties, bred on a steady diet of police shows, with no memory of the horrors of Vietnam. It is clearly a subculture ripe for fascist manipulation. As German pacifism was a response to World War I, so ours was a response to Vietnam. The young people who marched eagerly to war for Hitler had no memory of World War I. Similarly, in our society, teenagers suffer from social amnesia where Vietnam is concerned. And what is not remembered may well be repeated.

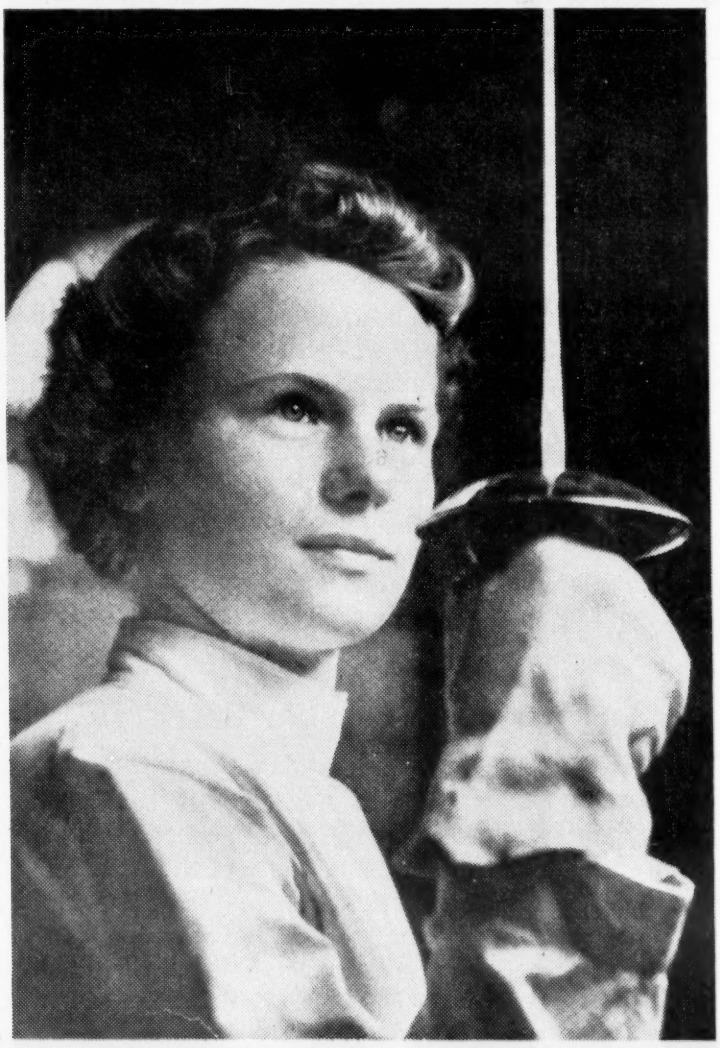
MISTAKES OF THE GERMAN COUNTERCULTURE AND POLITICAL LEFT

The mistakes which surely played a part in the rise of Nazism and the destruction of a German counterculture so like our own can be summarized, it seems to me, as an inability 1) on the part of the counterculture to deal with practical political realities, and 2) on the part of the political left in Germany to broaden its appeal beyond working-class self-interest.

The Social Democratic and Communist Parties (the backbone of the German left, however much they

were divided among themselves) neglected a concern with the extra-economic questions of personal relations and romantic uneasiness about industrialization. The Nazis were to exploit this. They appealed to intellectuals who had become alienated from or were persecuted by the Social Democrats because of their concerns with cultural questions. "Rather than work to introduce an idealist element to Marxism," George Mosse writes, "many intellectuals turned instead to the literary and aesthetic appeal of the fascist movement." The fascist intellectuals, Mosse says, wished "to solve the dichotomy between 'genuine' nature and modern technology in immediate and mystical ways." "The fascists," he adds, "came to believe that theirs was a spiritual revolution" against the crass materialism of industrial society.[23]

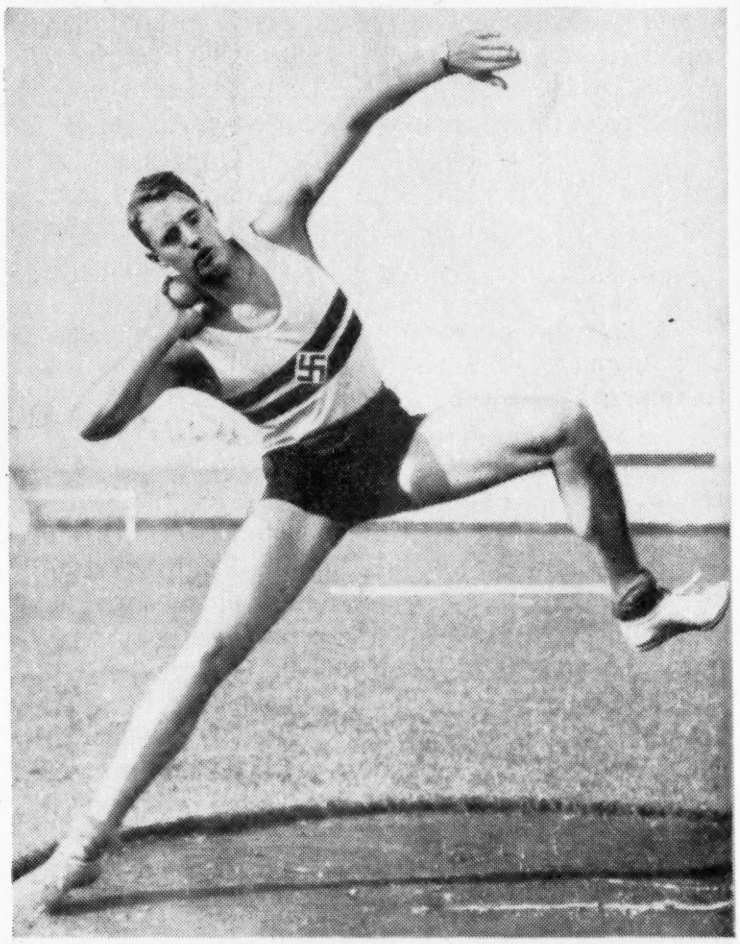
With the exception of the Women's Movement, much of today's organized left still holds so positive a view of the wonders of technological progress that it remains isolated from the growing ecological consciousness and desire for a slower, more simplified lifestyle. The American Communist Party, for example, finds itself caught in the trap of defending the SST and nuclear power (though not plants built by private industry) because the Soviet Union builds both. Most of the newspapers of the left devote little attention to the destructive effects of technological gadgetry on human capabilities (it is only the violence on TV that is criticized), their focus is restricted to technology's unequal distribution among classes. Concerns for changes in diet even, have been attacked by some so-called "Marxist-Leninists" as "petty bourgeois concerns" and therefore not to be taken seriously.



1942 — Hitler Youth

There are of course counterexamples – the Campaign for Economic Democracy which grew out of the Hayden Senate campaign in California is one. Wisely, I think, that movement seeks to unify concerns for a "democratic economy" – the age-old dream of socialists and Marxists – with the new concerns of the American counterculture about "quality of life" issues.

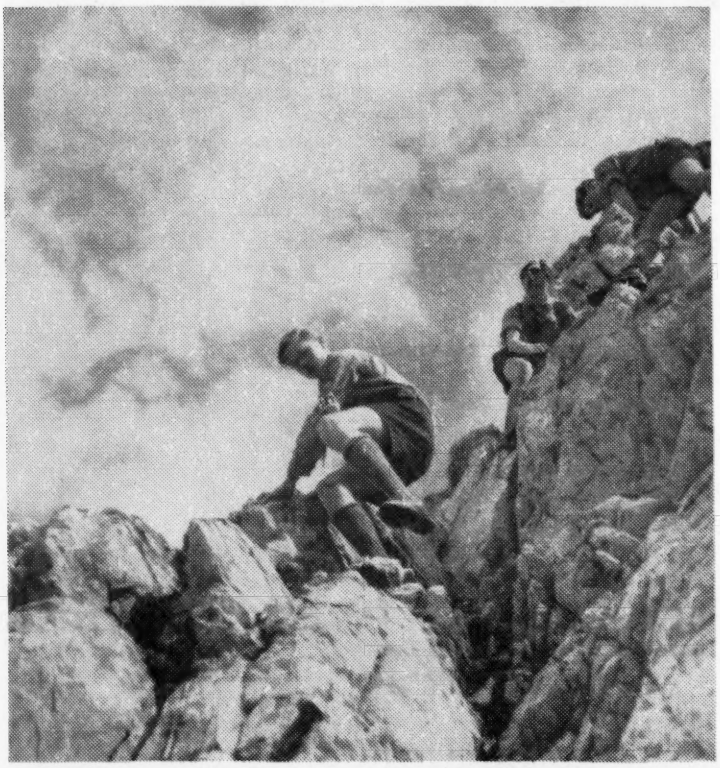
Clearly, even if the economic crisis deepens, the political movements of the Left, in their increased concern with economic issues, must not leave the question of alienated human relations, the "spiritual" realm, to the Jesus Movement and the popular psychologies of the "human potential movement," which ignore economic and political realities and offer simplistic "changes of consciousness" that glorify the isolated and narcissistic individual. Politics must never be allowed to become cold, mechanistic, and solely centered on



'self-interest' of a material nature. It must concern itself with promoting more humane relationships among people. If the political Left does not do this, it will not appeal to the young.

On the other hand, the American counterculture has in many ways far too closely resembled Wandervogel and its later German offshoots. "Wandervogel," writes Peter Stachura, "aimed to assert youth's longing to be recognized as an entity in itself, and to find an awakened sense of purpose in a society it felt had become too harsh, complex and materialistic. But the Wandervogel possessed no clearly formulated program to solve these problems, and instead channeled its protest through a hazy form of escapist romanticism which yearned for a return to the simplicities of unadulterated Nature and the uncomplicated, rustic life." Moreover, like our own counterculture, Wander-

vogel never broadened its class outlook, and its elitism offended the working classes. "The Wandervogel's attraction was by no means universal, and throughout its history it remained a mainly Protestant, urban middle-class phenomenon."[24]



The American counterculture must learn from the German errors. There are signs that many of its "members" wish to broaden their class base, as for example in the drive to open the Minneapolis co-ops to a wider line of foods, including those less "whole" or "pure" that have been contemptuously referred to as "junk" – in order to bring in people from working class backgrounds with more standardized American diets. I believe such moves are to be applauded. Moreover, it is necessary to counter the sentiment that sees politics as someone else's "thing," "not what I'm 'into'." The American counterculture in the seventies cannot afford to ignore political reality. It cannot escape the reality of struggle and the necessity of developing disciplined and programmatic responses to political decision-making. About the young Germans, Laqueur wrote, "An inability to think in political categories does not prevent people from getting involved in political disaster. . . . Only a political and social movement that set itself in deliberate and radical opposition to the established order could have – though it might not have even then – prevented disaster."[25]

A program of full employment – the aim of the original Humphrey-Hawkins bill – vigorously fought for, would, we must understand, do far more than put people to work and put money in their pockets. Freedom from the deadly fear of being thrown out of work would open new possibilities to people to struggle against repetitive, meaningless work in the production of useless or dangerous articles. There is only one example of how a seemingly traditional bread-and-butter issue, fought for and won, would provide new opportunities to pursue the more lofty and idealistic aims of the counterculture. That is, however, material for another article.

STRUGGLE FOR A FUTURE

Charles Reich glorifies an apolitical counterculture in **The Greening of America**. Theodore Roszak, in **The Making of A Counterculture**, heaps similar praise on the phenomenon, calling it "beyond dispute" that the counterculture "comprises a cultural constellation that radically diverges from values and assumptions that have been in the mainstream of our society. . . . They are the matrix in which an alternative, but still excessively fragile future, is taking shape . . . it looks to me like all we have to hold against the final consolidation of a technocratic totalitarianism." This rivalry between counterculture and old culture, Roszak adds, is "uniquely critical."[26]

Of course, those survivors of the Nazi death camps who can still remember Wandervogel or its successors, Free German Youth and the Bunde, probably would feel that the circumstances which faced those young Germans were as critical as our own, and that today's countercultural response to the horrors of industrial capitalism is not unique, after all. Sadly, neither Reich nor Roszak show any awareness of the pre-Hitler German counterculture, nor do they account for its demise.

The "greening of America," then, is no guarantee of a more humane future, as "the revolt of youth" was not. Such guarantees will come only when counter-culture joints political radicalism to envision and struggle for the future, seeking thoughtful alternatives to the economic and psychic chaos of our society and countering the drift to the totalitarian Right of the corporate powers-that-be. There is no escape to the woods from the great conflict that lies on the horizon. ■

FOOTNOTES

1. H.W. Koch, *The Hitler Youth*, Stein & Day, New York, 1976, p. 19.
2. Ibid.
3. Ibid., p. 31.
4. Walter Laqueur, *Young Germany*, 1962, p. 106.
5. Ibid.
6. Ibid., p. 41.
7. Ibid.
8. Ibid., p. 46.
9. Hermann Hesse, *Reflections*, N.Y., Farrar, Straus & Giroux, 1974.
10. Hesse, *Narcissus and Goldmund*, N.Y., Farrar, Straus & Giroux, 1968, p. 186.
11. William S. Allen, *The Nazi Seizure of Power*, Quadrangle, Chicago, 1965, p. 227.
12. Ibid., p. 111.
13. Ibid., p. 111 and 133.
14. Ibid., p. 219.
15. Ibid., p. 27.
16. Ibid.
17. George Mosse, "Fascism and the Intellectuals," in *The Nature of Fascism*, S.J. Woolf (ed.), Random House, New York, 1969, p. 205.
18. T.W. Mason, "The Primacy of Politics," in *The Nature of Fascism*, p. 165.
19. Allen, op. cit., p. 175.
20. See the discussion by Harry Boyte, "The Populist Challenge," *Socialist Revolution*, March - April, 1977.
21. Laqueur, op. cit., p. 196.
22. Allen, op. cit., p. 79.
23. Mosse, op. cit.
24. Peter D. Stachura, *Nazi Youth in the Weimar Republic*, Clio Books, Oxford, England, p. 3.
25. Laqueur, op. cit., p. 237.
26. Theodore Roszak, *The Making of a Counterculture*, Anchor, Garden City, N.Y., 1969, pp. xii - 1.

What's new in the 1920's:

America is going Greenwich Village.

The Ideas of Greenwich Village

BY MALCOLM COWLEY

January, 1933, Scribner's Magazine

Greenwich Village was not only a place, a mood, a way of life: like all Bohemias, it was also a doctrine. Since the days of Gautier and Murger, this doctrine had remained the same in spirit, but it had changed in several details. By 1920, it had become a system of ideas which could roughly be summarized as follows:

1. The idea of salvation by the child. — Each of us at birth has special potentialities which are slowly crushed and destroyed by a standardized society and mechanical methods of teaching. If a new educational system can be introduced, one by which children are encouraged to develop their own personalities, to blossom freely like flowers, then the world will be saved by this new, free generation.

2. The idea of self-expression. — Each man's, each woman's, purpose in life is to express himself, to realize his full individuality through creative work and beautiful living in beautiful surroundings.

3. The idea of paganism. — The body is a temple in which there is nothing unclean, a shrine to be adorned for the ritual of love.

4. The idea of living for the moment. — It is stupid to pile up treasures which we can enjoy only in old age, when we have lost the capacity for enjoyment. Better to seize the moment as it comes, to dwell in it intensely, even at the cost of future suffering. Better to live extravagantly, gather June rosebuds, "burn our candle at both ends."

Malcolm Cowley, now 79, and American letters are almost synonymous. Working backwards, I knew of him first as the man who got young Ken Kesey's **One Flew Over The Cuckoo's Nest** *into print, then as the editor of my preferred edition of Whitman's* **Leaves of Grass**, *then as the compiler of* **The Portable Faulkner** *(and* **Hemingway**, *and* **Hawthorne**, *etc.), and here as chronicler of one generation of certain ideas that seem always to recur as "new." This piece is the final two-thirds of a* **Scribner's** *article titled "War in Bohemia." It reappears, slightly modified, in a Cowley collection called* **Exile's Return** *(1934; 1951, Viking, still in print). We're grateful to Mr. Cowley for permission to reprint and the pleasure of his conversation on the phone.*

—SB

5. The idea of liberty. — Every law, convention or rule of art that prevents self-expression or the full enjoyment of the moment should be shattered and abolished. Puritanism is the great enemy. The crusade against Puritanism is the only crusade with which free individuals are justified in allying themselves.

6. The idea of female equality. — Women should be the economic and moral equals of men. They should have the same pay, the same working conditions, the same opportunity for drinking, smoking, taking or dismissing lovers.

7. The idea of psychological adjustment. — We are unhappy because we are maladjusted, and maladjusted because we are repressed. If our individual repressions can be removed — by confessing them to a Freudian psychologist — then we can adjust ourselves to any situation, and be happy in it. (But Freudianism is only one method of adjustment. What is wrong with us may be our glands, and by a slight operation, or merely by taking a daily dose of thyroid, we may alter our whole personalities. Again, we may adjust ourselves by some such psychophysical discipline as is taught by Gurdjieff. The implication of all these methods is the same — that the environment itself need not be altered. This explains why most radicals who became converted to psychoanalysis or glands or Gurdjieff gradually abandoned their radicalism.)

8. The idea of escape. — In Paris, in the South of France, in the South Seas or perhaps in Mexico, one can escape from all the complex restrictions of our Puritan culture. By expatriating himself, the artist will be able to express himself more freely. Failing in this attempt, he can erect his own isles of freedom in the shadow of the skyscrapers.

All these, from the standpoint of the business-Christian ethic then represented by **The Saturday Evening Post**, were corrupt ideas. This older ethic is familiar to most readers, but one feature of it has probably not been emphasized. Substantially, it was a *production* ethic. The great virtues it taught were industry, foresight, thrift, and personal initiative. The workman should be industrious in order to pro-

"They're all desperadoes, these kids, all of them with any life in their veins; the girls as well as the boys; maybe more than the boys," wrote Warner Fabian in **Flaming Youth.** *This one is Suzette Dewey, daughter of the Assistant Secretary of the Treasury. The photo and caption are borrowed with respect from Time-Life's "This Fabulous Century" series, Vol. III,* America 1920 - 1930.

duce more for his employer; he should look ahead to the future; he should save money in order to become a capitalist himself; then he should exercise personal initiative and found new factories where other workmen could toil industriously, and save, and become capitalists in their turn. During the process many people would suffer privations: workers would sometimes live meagrely and wrack their bodies with labor; even the employers would deny themselves luxuries which they could easily purchase, choosing

instead to put back the money into their business; but after all, our bodies were not to be pampered; they were temporary dwelling places, and we should be rewarded in Heaven for our self-denial. On earth, our duty was to accumulate more wealth and produce more goods, the ultimate use of which was no subject for worry. They would somehow be absorbed, by new markets opened in the West, or overseas in new countries, or by the increased purchasing power of workmen who had saved and bettered their position.

This was the ethic of a young capitalism, and it worked admirably, so long as the territory and population of the country were expanding faster than its industrial plant. But after the War, the situation changed. Our industries had grown enormously to satisfy a demand which suddenly ceased. To keep the factory wheels turning, a new domestic market had to be created. Industry and thrift were no longer adequate. There must be a new ethic which encouraged people to buy, a *consumption* ethic.

It happened that many of the Greenwich Village ideas proved useful in the altered situation. Thus, *self-expression* and *paganism* encouraged a demand for all sort of products, modern furniture, beach pajamas, cosmetics, colored bathrooms with toilet paper to match. *Living for the moment* meant buying an automobile, radio or house, using it now, and paying for it tomorrow. *Female equality* was capable of doubling the consumption of products formerly used by men alone. Even *escape* would help to stimulate business in the country from which the artist was escaping. The expatriates, against their will, were trade missionaries for fountain pens, silk stockings, portable typewriters. They drew after them an invading army of tourists, thus increasing the profits of steamship lines and travel agencies. Everything fitted into the business picture.

I don't mean to say that Greenwich Village was the cause of the revolution in morals that swept over the country in the decade before 1930, nor do I mean that big business deliberately plotted to render the nation extravagant, pleasure-worshipping and reckless of the future. The new moral standards had other sources – the excitement and uncertainty of the War itself; the automobile, the movies, the sex magazines, the new psychology, prohibition – but Greenwich Village was the first to adopt them. And business, though it laid no plots in advance, was quick enough to use the situation.

Thus, when women began smoking, the cigarette manufacturers foresaw the effect of the new custom on their volume of sales, but they hesitated to offend public opinion. The most they dared was gradually to introduce an attractive girl into their illustrations, sitting beside the handsome young man with his Camel or Chesterfield or Lucky. Then they took a further step: the girl implored the man to "blow some of the smoke my way." Then – a real sensation – came the first billboard on which the girl herself was actually smoking. By 1930, when the total production of cigarettes had more than doubled, propaganda for smoking by women was appearing even in the farm journals, against the violent protests of farm readers. Instead of merely profiting by the revolution, the manufacturers were now promoting it.

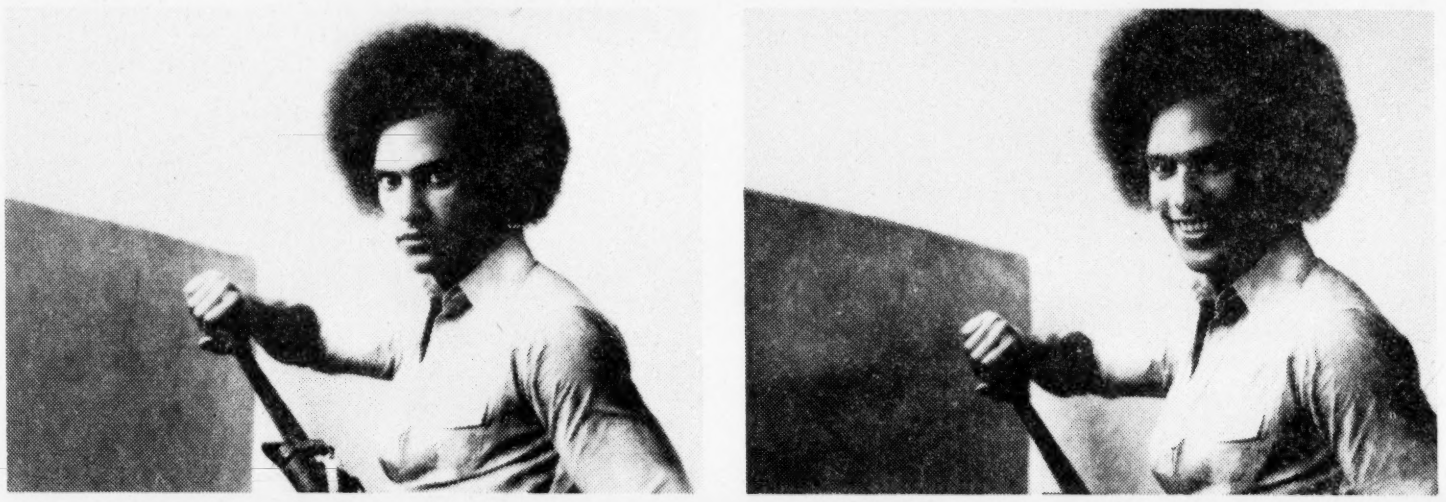
Meanwhile the moral revolution had been spreading through the country. Women east and west had bobbed their hair; they now smoked cigarettes while eating lunch in black-and-orange tea shops just like those in the Village. Houses were furnished to look like studios. Stenographers went on parties, like artists and models and dress manufacturers. The "party," conceived as a gathering together of men and women to drink gin cocktails, flirt, dance to the phonograph or radio and gossip about their absent friends, was in fact becoming one of the most popular American institutions; nobody stopped to think how short its history had been in this country. It developed out of the "orgies" celebrated by the French 1830 Romantics, but it was introduced to this country by Greenwich Villagers – before being adopted by salesmen from Kokomo and the younger country-club set in Kansas City.

Wherever one turned, the Greenwich Village ideas were making their way; even **The Saturday Evening Post** was feeling their influence. It began to wobble on prohibition. It allowed drinking, petting and unfaithfulness to be mentioned in the stories it published; its illustrations showed women smoking. Its advertising columns admitted one after another of the strictly pagan products – cosmetics, toilet tissue, cigarettes – yet still it continued to thunder against Greenwich Village and bohemian immorality. It even nourished the illusion that the long campaign had been successful: on more than one occasion it announced that the Village was dead.

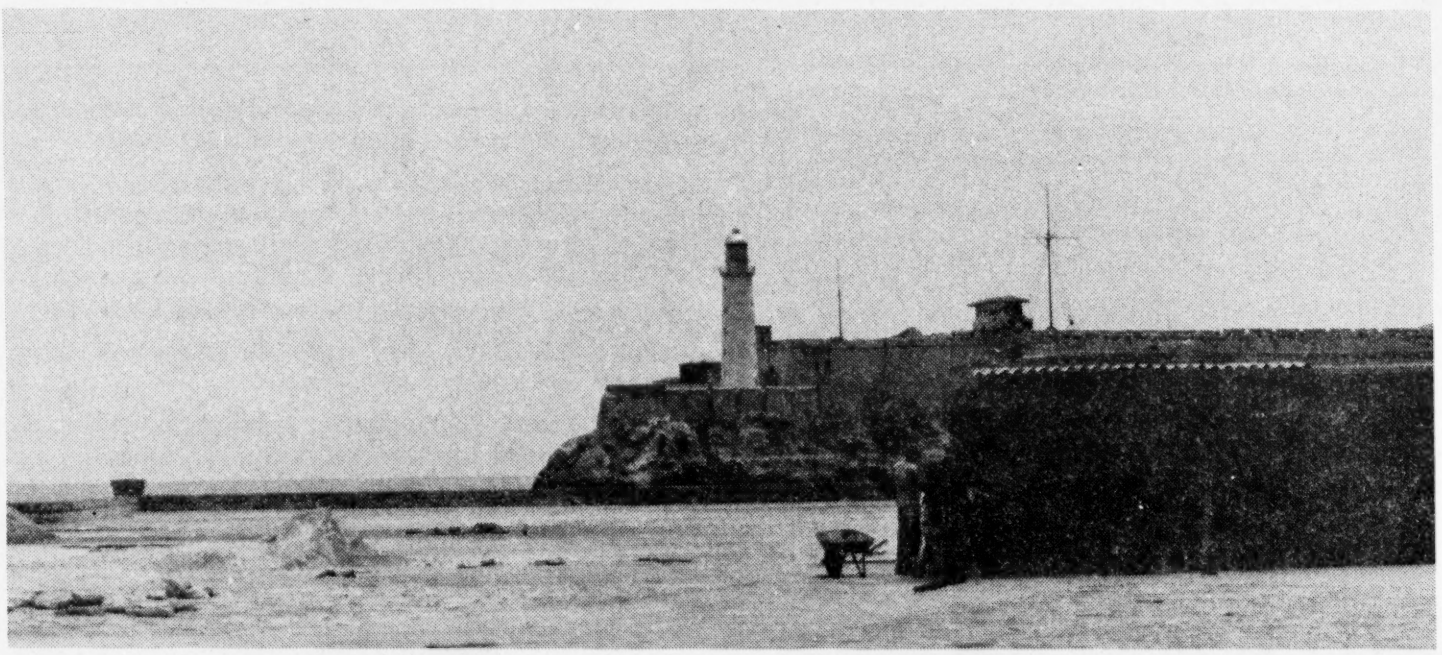
Last winter its editorial page contained a sour obituary. "The sad truth is," it said, "that the Village was a flop. None of the causes for which it fought and argued and starved ever amounted to anything. The new standards which it demanded in all the arts proved false and artificial, even silly. . . ." But most of the causes for which the Villagers "fought and argued and starved" were not artistic causes. The standards they demanded were social, and their effects are to be sought in our business and social life. Perhaps the Village is moribund today, but we can't be certain: creeds and ways of life among artists are hard to kill. If it is true, however, that the Village is dying, the reasons are not those assigned in **The Post** editorial. It is dying because it became so popular that too many people insisted in living there: the results were expressed in rents too high for the pocket-books of the indigent Villagers. It is dying because many of the younger writers and artists have adopted the hard morals of the Communists, and because the older ones, those who made the Village famous, are living in Connecticut or Vermont on what they earn by working for weekly magazines of large circulation. It is dying, finally, because women smoke cigarettes in the streets of the Bronx, drink gin cocktails in Omaha and have perfectly swell parties in Seattle and Middletown – in other words, because the whole of middle-class America has been going Greenwich Village. ■

Sanctuary In Cuba

RECOLLECTIONS AND SNAPSHOTS OF HUEY P. NEWTON



It's a cane-cutting machete, but I only used it to work on the yard. I asked to cut cane, but the Cubans don't feel North Americans can adjust to the heat – it's 110° in the cane fields. Even the Venceremos Brigades no longer cut cane, they only do construction work. Cubans are tough. They can do it.

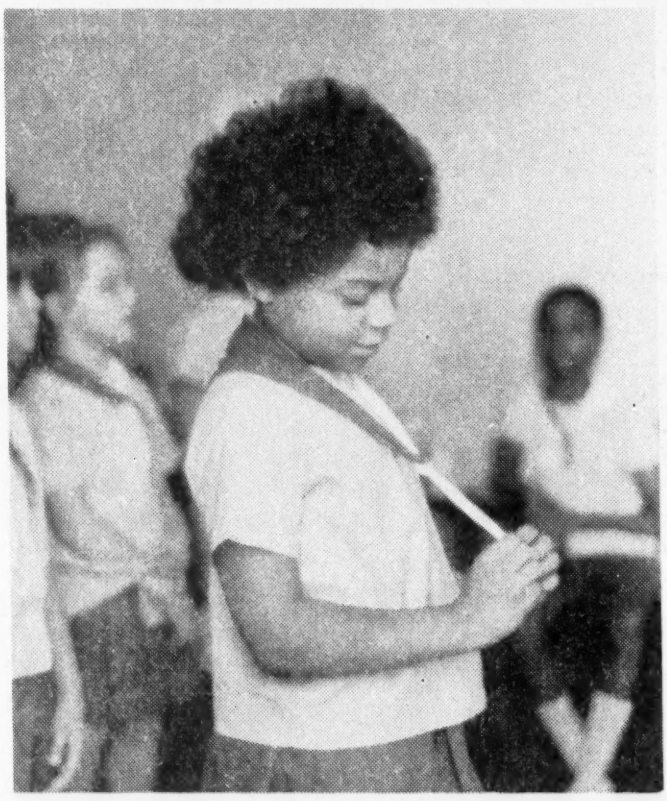


This shot is very significant to me. When I went into Havana it was at night and I was many miles out at sea, and I was told to look for this beacon light that flashes twice every 15 seconds. Of course I couldn't see it most of the time because we were in a small boat and the waves were 5 to 10 feet high and we only had 9 horsepower, so I could just peek at it. It was Thanksgiving Eve, 1974. The boat turned over about 50 yards from the shore and then ran over us, but we went under water and weren't hurt and were washed ashore. Cuba is a volcanic island and we were all cut up by the rocks, but there were no broken bones. We were rescued by the CDR (Committee to Defend the Revolution). They called the Army of course and took us to Immigration. We were questioned there and then placed under house arrest until they could verify our identity. We were treated well.

Huey Newton (35) is the founder (1966), President and chief theoretician of the Black Panther Party, based in Oakland, California. In the fall of 1974, while under indictment for assault, murder, and a tax charge, he left the United States and sought asylum in Cuba. He and Party member Gwen Fountaine lived in Havana for six months and then in Santa Clara in Los Villas Province for six months, where they were joined by Huey's children Jessica and Ronnie (care of Gwen's mother), then they moved back to Havana for a year, then Alamar near Havana for six months. Gwen worked as a teacher in a hospital, Huey repaired cement trucks, and the kids went to school. Most of these pictures were taken this spring and summer just before they returned to the U.S. Huey, now out on bail, loaned us his snapshots and gave us a brief interview on what he learned in Cuba. Contributions for Huey's defense fund (tax deductible) can be made payable to the Capp Street Foundation, Suite 217, Claremont Hotel, Berkeley, CA 94705.

–SB

This is the truck repair shop where I worked. The Party likes that one best of all. I worked there about six months. It was required to work 10 hours for 5 days and then 5 hours on Saturdays, but I worked 10 hours a day 7 days a week voluntarily. I never worked on cars before so I wasn't too good, but everybody was nice to me anyway.



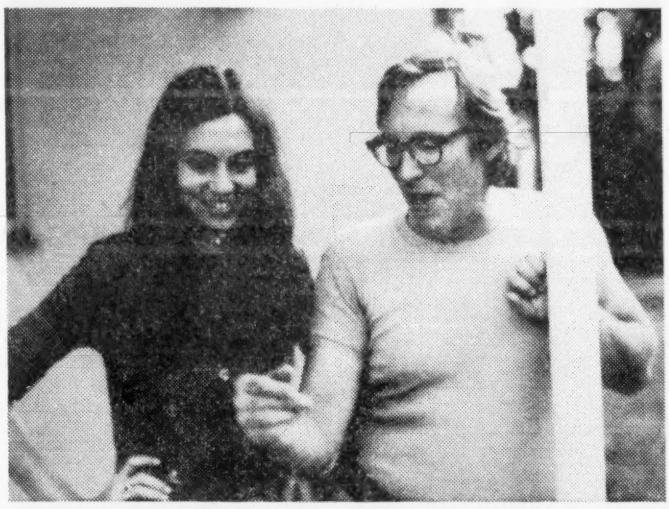
This is Jessica in her uniform at school. She was a member of the Pioneers, which is like advanced students. You start out in the Pioneers, then you're in the Young Communists, then later the Communist Party. Jessica's Spanish was so fluent they thought she was Cuban most of the time.

That's Gwen in the Hotel Riviera. Barbara Walters was there at that time. It's kind of a fabulous hotel. Usually we stayed at the Havana Libre.

Stewart Brand: I gather that you and Gwen Fountaine were married in Cuba?

Huey Newton: Yeah. We were married in a wedding temple where a lawyer reads the ceremony, and the family code is read which says that by Cuban law the male has to take half the responsibilities of child care and housecleaning and cooking, or else you can go to jail.

Brand: Do they indict people for that? Some lady comes in and says he won't wash the dishes.



That's Harry Tanner and his wife. His parents are Canadian, he was born in Cuba. He's a Cuban artist — I have some art work of his. He had a big contradiction with the courts because he was a filmer and he wanted to just be a painter, but Cuban artists have to have a job someplace else. So he refused to take a job — he supports the Revolution and so forth — and there's an anti-loafing law. He sells his paintings mostly to the embassies. He's a fine artist and he couldn't get along with the people in the film institute on the creative level, so they charged him and sent him to court. He got a lawyer and the lawyer told him to just stick to his guns because the anti-loafing law was made for loafers, and he worked about 20 hours a day. He brought his work to court and showed that he was paying the rent and for his kids in school, but he lost the case. They appealed and it's been at the Supreme Court now about four or five years, and he doesn't think they'll ever rule on it because they don't want to change the law. Tanner is sort of a hero among the Artist's Union.

That's downtown Havana from Tanner's balcony.

Newton: Yeah, or won't take care of the baby. It's not happening as much as it will happen because the women have to get more confidence to take the guys in.

Brand: How'd that work out for you and Gwen?

Newton: I like to do dishes anyway, so I had no problem with that. And I think I can cook better than she can, some things. I did that long before the marriage. We'd been staying together four years before the marriage.

Brand: Was the wedding a big deal for you guys.

Newton: If it was going to be a difference I wouldn't get married. Maybe that's why I waited so long because I had a certain amount of fear that things would be different. But I was pretty secure at that time that we had a definition of the situation. I was calling her my second wife because the Party was my first, and I'm a bigamist. She accepts that.

Brand: What was your status in Cuba?

Newton: Well, political asylum. I was a permanent resident and an honored guest of the government. That included special privileges, like I could always get a driver and a car. Transportation there is very bad – the buses are like a sardine can and they have taxis but they're not enough. And I could get reservations in restaurants on the weekends, when Cubans like to go out to eat. I had a delegation status, so I could get a table in any restaurant as the North American Delegate.

Brand: Was there any kind of fuss made when you left?

Newton: No. They were just concerned that I wouldn't say anything that would embarrass Cuba or make any official statements for Cuba. They were very intent, because every North American that they've given an honored guest status to has denounced Cuba. Robert Williams denounced Cuba. Stokely Carmichael denounced Cuba, said it was a racist state. And Eldridge Cleaver. Each one of them really let Cuba down. I think that was one of the big reasons I didn't see Fidel. Each one of those people saw Fidel. That's my impression anyway – of course I never asked to see him. I think it's impolite to ask to see him. But everything else I wanted I got.

They also were concerned that I didn't use Cuba as a base of operations, because they wanted a relationship with the United States, so they were concerned about Party members visiting me.

Brand: How did that work out in terms of rest for you, to be cut off from the Party for a while?

Newton: It was good for me. I didn't know how tired I was. I didn't know how much of a toll the constant surveillance had upon me until I didn't have that any more. For the last 11 years I was obviously followed, even to the grocery store, pictures being taken. Everyone I contacted, they were eventually bugged and harassed by the FBI. I don't notice anyone on my tail since I've been back this time. Maybe their technology's so high that they can use radio beams, but it's really strange not to be followed.

Brand: I often wondered about the – it's really a tradition – of exile for political people. You just are out of it for a while.

Newton: I got a chance to do a lot of writing on Party history. And a lot of reading. I hadn't read a book in its entirety in years.

Brand: What did you find yourself reading?

Newton: Just everything I got my hands on. I read Korzybsky, **Science and Sanity**, a book that I had had for about 6 years. I always said that I wanted to read it. I finally read it and I was as impressed as I thought I would be. I read a lot of Marx' works and Lenin. I read Harrington, **The Twilight of Capital**, a very good book. I've always been interested in Existentialism. I read Sartre, **Being and Nothingness**. I read some books on Fanon. Of course I read **Roots**. A friend sent me **Five Rings**, it's a very small work, about this Buddhist samurai. It's a fascinating book. It seems it's all on combat, really it's on how to live.

Brand: Were you doing any light reading?

Newton: I read some novels. Gore Vidal's **1876** and **Burr**. I read a lot of Saul Bellow, whom I like a lot. I hadn't read a novel in about 10 years. I really entertained myself. I read about 400 books. It was really something to give the books away. I gave everything else away and I had read these books, but I found myself attached to them. I wanted to keep them, but people needed them there because it's hard to get some books.

Brand: How did you find so much time for reading?

That's Bill Brent. He's a Panther. He hijacked a plane in '68, and he's been in Cuba ever since. He just graduated from the University of Havana where he'll be teaching in Spanish history and languages — French and English. He's a member of the CDR and a member of the North American Union. He's very respected there. He's the only North American skyjacker who's really made an adjustment to the Cuban life. Just about all the other skyjackers — they have about 25 — are in big trouble with the Cuban government for getting into black marketing and all sorts of things. They've gone to prison several times in fact, after they got out for invading the integrity of Cuban territory.

Newton: I only worked at the truck shop for 6 months. When I taught at the University of Havana, that was on a part-time basis. I taught the History of Social Movements to small workshop groups. That was only a couple of hours a week.

Brand: What was the University like?

Newton: It was different, because everybody there was interested in learning. That was different than schools I've been to and lectured at here. They're really interested in their field, and international politics. There's a direction. Here you have all these things happening and disagreements. There you get this singleness of purpose, from the university to the cane fields. You get the feeling you're a member of a collective, the whole country's a collective, and you're working to make life better there.

Brand: How does that compare with what you saw in China?

This is right out in front of my home at Alamar, about 30 miles from Havana. They're building a sports stadium here to seat 20,000. The apartments across there are similar to the ones I was living in.

Elaine Brown, the Panther Party Chairperson, came to visit in 1975.

Newton: It was similar in China. But China is such a breathtaking thing because it's so huge. And the Chinese way of going about things is much more efficient I would say. It's like clockwork. And Cuba is more of a laid-back thing, it's more relaxed. For instance if a Cuban tells you you're going somewhere at 8 o'clock, if you actually come at 8 and not at 10, they'll think you're crazy. In China if someone's going to pick you up at 9 o'clock, at two minutes of 9 you can expect a knock on the door. And then the Chinese have a relaxed way of sitting down with a cup of tea like they're going to sit there for two hours, and then straight-up-9, everyone will just get up and start backing out to the door while they're still talking. Of course I was in China only about 20 days, and Cuba 3 years. Cubans have more of a Black culture. I could feel more of a part of it. I was strictly an observer in China, and I felt integrated into Cuban society.

Brand: What's different in Cuba from here?

Newton: I think the feeling that truly everybody is an extended family, and the concern for everybody else's welfare, If you borrow some flour or some meal from someone, it's an insult to give them that back. If you get some extra beans or something, you'd give them that and then they would be happy because it's like a gift. You never have to worry about someone watching kids, because the whole building is glad to do it. Everyone's in the CDR, and they meet once a week. Here it's a feeling of alienation, and there it's a collective. That's outside the political thing. They're interested in each other's life in a brotherly way.

Brand: Is there much crime?

Newton: The crime rate is relatively low, but it's rising, it seems, as more tourists come in.

Brand: Why?

Newton: Well, because you have scarcity, number one, everything's on ration, and then these tourists come in with big money, spending it. So around the hotel area the crime rate is going up, but it's not going up in the countryside. All the stores around the hotels are considered tourist stores. Cubans can't buy there. So you get some Cubans giving tourists pesos to buy them things — radios, watches from Japan, and so forth. For the Cuban government, of course, the stores are a way to buy foreign money in order to enrich their economy. But just this display of things that people can't have, and other people do have, creates a certain amount of crime — purse-snatching and robbery.

Brand: Usually when you have a controlled economy you get a fair amount of black market activity. Is there much of that?

This is the capitol. You notice it's patterned after the capitol in Washington.

Newton: Yeah. It's not a national problem but I think it's a growing thing. It'll happen more as tourists come in because, you see, the tourists will buy these things for Cubans – say, a radio, and the Cuban will resell it for double its price on the black market. The government is aware of this and what they're trying to do is put more in the stores for Cuban consumption. And they feel the only people who can really supply them with this kind of stuff is the North Americans.

Brand: Do they get North American television broadcasts there?

Newton: It's all blacked out. Every once in a while something will go wrong and you'll get "Soul Train" for a few minutes.

Brand: They do that because why? It would be like having a tourist in the living room I guess.

Newton: Yeah. They show North American movies though. They showed "The Godfather," "Buck and the Preacher." They show a lot of old gangster movies because it's good propaganda. And a lot of Canadian movies, French movies, English movies, Italian movies.

Brand: What about job mobility? Do you pretty much stay with whatever line of work you first get a job in?

Newton: Each job center has a school where you can go two hours a night three times a week, and the unions put social pressure on you to advance yourself. If you want another job you can register in whatever ministry – of culture, of labor, of industry – and if you get the new job you can quit the job you're on.

Brand: What did you learn personally in Cuba?

Newton: Well, I think that my view of what revolution is about has changed a little.

Before the revolution in Cuba there was a tradition of a cotillion ball, like a coming-out party for the girls when they were 16. The rich would do this. The girl would go to this hotel, there'd be fancy parties, she would change clothes about 10 times, with a banquet room and a lot of food. And this was denied to the poor people.

So after the revolution many people don't understand and they want everything the bourgeoisie had. So now the worker many times starts saving the minute a girl is born and saves for 16 years a few pesos a week so that they can give her this party. The Communist Party is against this, but they know that the people want it, so they make the hotels available, only they cut the price and at the same time propagandize against these parties, but they don't make a law against it or make it more difficult for the people.

I say that generally speaking too much of the time the Left in the United States requires the people to make a big jump that they're not prepared for. The Cubans don't even do that after a revolution. Fidel said in '59 they "won the right to make revolution." They have to transform the man and the woman now. They only won the right to do that.

So my whole attitude is changed as far as my approach to people no matter what their values are. I try to slowly stimulate their consciousness. That's one big change that I've noticed in myself.

Brand: It took a revolution in Cuba for that to happen. Do you think it'll take one here?

Newton: Yeah. But I think that Cuba is no blueprint for the United States. It's a whole different situation. It's a technological society. We would have to make our revolution based on our cultural history and the whole gestalt of our society. Some form of socialism will have to exist in the United States, but it won't be the Cuban form because the Cubans don't have the Soviet form or the Chinese form. They have a form of socialism consistent with their history.

Brand: What I'm wondering is if the United States requires something as sudden as what happened in Cuba?

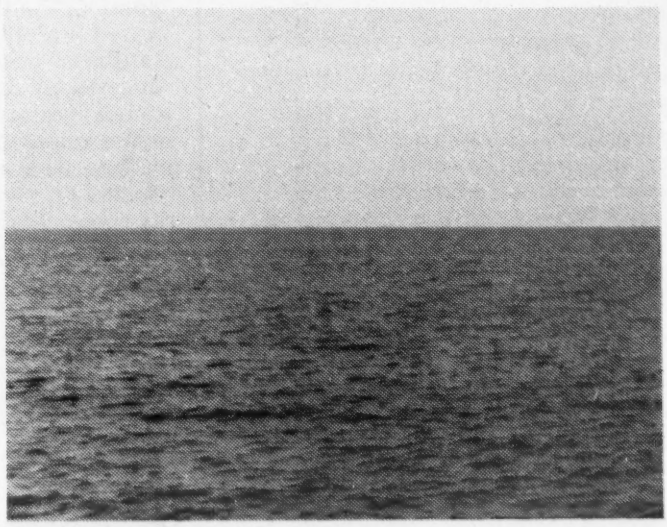
Newton: I think that some things will be dramatic. What happened in Chile when Allende was voted in – some leftists say, "But you see what happened," – I say, "Yes the revolution was crushed by the CIA and the dictators, but you can't deny that a transformation was made with the vote." Now after that transformation, perhaps, Allende should have drawn the workers as an army around him, and then it would have been one of the more smooth transformations that has ever happened in history as far as I know.

Brand: One of my friends worked with Allende, and he says, "I'm not sure. By moving too fast for the Chileans we may have brought about the oppression we have now by moving so fast that there had to be a counter-revolution." And it then was able to stick, in a way the revolution wasn't.

Newton: That's possibly true. Or possibly after the gradual move, the electoral process, the pace could have been moved faster to put down the reaction. I don't know. It's just speculation. Something went wrong. I just emphasize that the transformation was made and not in a bloody way. But to hold it there other means were necessary apparently, because the thing failed.

Brand: Well, it's like love affairs. None of them are a pattern for any other.

Newton: That's right. ■



I'm going to have this one blown up, just a picture of water with nothing on it. That's a feeling that I like to think about sometimes.

Havana Province, 1977

Conversations with Cubans

BY CONN NUGENT

HAVANA is an amiable place with little evidence of squalor or inequity. People seem warm and animated.

The city is rundown and a little seedy. Most of the buildings could use a paint job. Many need repairs for shaky staircases and balconies that threaten pedestrians. You often see wooden buttresses clamped between buildings on opposite sides of the street, stiffening their spines. There are a lot of cockroaches and a good deal of litter, although nothing in the class of New York.

To a degree, this is intentional. The government wants to discourage migration to Havana and to make the countryside more attractive. So most public works occur on other parts of the island. Housing projects for the city are erected on its outskirts, in unfinished new towns that have welled up by the shore. My wife Linda and I are restricted to the Province of Havana (about the size of Rhode Island), but even within those bounds the rural emphasis is apparent.

Still, Havana is dilapidated but not sad, and its shabbiness has charm. The colonial architecture is admirable, the houses come in pleasant, irregular pastels, and there's a lot of life in the streets. The very fact that the government chooses to make showcases of other people in other locations lends a taste of anarchy and candor.

The cars are endearing, if you like cars. When the United States imposed its economic blockade in early 1961, automobiles (and lots of other things) became hard to come by. So Havaneros, through skill and perseverance, have kept alive a dwindling fleet of American has-beens. Ghosts sputter by: DeSotos, Packards, Hudsons.

It's hard to walk down a street in Havana without one of these old turtles straddling the sidewalk, hood up, while somebody tinkers with the insides. My first day in town begins with two men fixing a 1951 Henry J. We talk a little car talk. I ask them to suggest a good starting point for a walking tour of the neighborhood. At my first stop I meet Elena.

Elena helps run a soda fountain, but since there's no soda pop left she's taking a break at one of the open-air bars that dot Havana Centro. She says that the beer at the tourist hotels is much stronger than the stuff we're drinking, so you have to take a lot "to feel really good." She orders me another round. A fellow with a clipboard and badge then comes in and asks for a beer. Sorry, says the bartender, we just ran out. There are smiles all around as the man with the clipboard drums his fingers for a moment, then turns and walks away. He is "just some functionary," they say, and they seem to enjoy his discomfort.

Elena says she doesn't think much about politics. She doesn't care for "all those people with their little pieces of paper," and she asks me again and again to tell her about "some of the things you have in the United States." But, she says, life is good. Her husband is a fine man (she squeezes his arm), she has all her friends (gestures towards the rest of the customers), and her heart is here in Havana. She wants to know about my family, the kind of house we have, how other Americans live, what kind of beer we drink. She wants to know what Americans think of Cuba. I tell her that most Americans have no fight with Cuba and would like to meet more Cubans.

"That's right," she says, "forget about the politics! The Cuban people are good, and so are the Americans. Let's be friends!"

Everyone nods.

One of the advantages of American hostility to Castro was that it allowed Cubans to develop international points of reference. The economic blockade countered our natural ties of geography and culture. And yet, for a stylish Havanero, American taste still rules. A government station plays rock 'n roll every night at six. Cuban mills produce blue jeans and bright polyester dresses and even polka-dot tennis shoes. People still complain. Not enough goods, of course, but also not enough "things of quality, like you have in the United States." I am a real disappointment in baggy chinos and bland short-sleeves. Only my Adidas shoes — blue stripes on bright yellow mesh — evoke any approval.

I ask a woman on a bus if there is lingering resentment of a country that controlled her economy, invaded her territory, and tried to kill her Prime Minister.

"Yes, but that is all politics, and all in the past." She is quiet for a while, and her gaze settles on the shoreline near Alamar. "But I'll tell you something. I remember in 1962, in October, the morning I woke up and looked off at the ocean here. For as far as you could see, there were ships of the United States Navy. Oh my, that was something."

In July, 1977, the author discovered the easiest route to Cuba for North Americans — an outfit called Treasure Tours in Montreal — and hastily took advantage to pursue his interest in Catholic cultures. Conn is Irish, born in Ireland in 1945, reared in New York, lives in Boston, with a couple of degrees from Harvard (History and Law). He did two years in Costa Rica as a Peace Corps Volunteer and now is the director of two private foundations in Boston — "One half of the money goes to inner city social services, because St. Francis said to do it, and the other half to the productive use of renewable resources."

—SB

CECILIA is an undeviating Revolutionary and an aspiring Party member. She sits on the local Committee for the Defense of the Revolution, and is a member of both the Communist Youth and the National Federation of Women.

She also embodies some of the best characteristics of the Cuban people. She is generous, friendly, unaffected, talkative, proud, good-looking and funny. She has invited us to her place for some conversation.

At Habana Este, left to right, Cecilia's mother, Cecilia, Linda Baker, Inez, and Ronaldo. The boys: Alfredo, Ramon and Enrique. Photographs by Conn Nugent.

When she speaks, her hands fly in all directions. They cross her breast to convey sincerity and conviction; they touch your arm for understanding. They flutter about her face, describe circles in the air, turn up in supplication. Cecilia is a dynamo, and very winning.

She has a great love for children. She is delighted with Linda's pregnancy, and offers lots of tips on childrearing, most of them throwaway jokes. Her own two boys are in the room. Ramon is dressed like a Viking in preparation for tonight's carnival. He lumbers around the apartment in his horned helmet, stopping now and then to show off something he learned in school. His brother Enrique clings to Cecilia and gets great smacking kisses in return. She imparts a deep taste for life.

So it seems strange to hear her politics, all straight from a catechism. There can be no socialism without a unitary party of the vanguard. The Party, by its nature, represents the people. Leonid Breshnev is a great leader in the quest for peace. China is deviationist. The American working class lives in poverty and debasement. Soviet troops rescued Czechoslovakia in the spring of 1968. The Cuban press is the voice of the people. All policy announcements — even those by Fidel — represent the collective and scientific wisdom of the Central Committee.

Cecilia works at the National Psychiatric Hospital, of which she is proud. She shows us some photographs of the grotesque Batista-era facilities. She then shows photos of the new institution, a modern complex where, she says, the residents do productive work under the care of a large staff. Later in the week, we pass by the hospital and look in. As promised, it looks very fine and the residents seem well cared for.

Who can doubt her sincerity? Cecilia works at an interesting job in a benign environment. Her children are receiving what appears to be a solid education, and they are healthy and happy. She and the family live in a clean, airy apartment, well maintained. There is enough to eat.

And yet something of Cecilia comes from beyond the dialectic. "Don't think I don't know you North Americans. I know about the United States. My father abandoned my mother and me in 1967. He lives near Detroit. He has never known his grandchildren."

"Do you ever want to see him again?"

"No, never."

I ASK Ronaldo, another strong Revolutionary, what he thinks of those who left.

"Well, you know, many of those people were large landowners *(latifundistas)* or very rich businessmen from Havana."

"Sure, but there couldn't have been 800,000 *latifundistas* and rich businessmen."

"Well, that's right. I come from a poor family and my brother now lives in Miami. He was brought up in the old ways and he wanted many things. I am a younger man." He shrugs. "Listen, even Fidel's sister left. It's a hard thing."

THE ACHIEVEMENTS of the Cuban Revolution have been catalogued many times, but some bear reiteration. Illiteracy has been virtually eliminated. Free medical care is available in all parts of the island. There is something close to full employment. Women enjoy the same legal rights as men. There are many new public facilities.

And food is sufficient, although by no means plentiful. Any person who has walked the streets of the Third World can probably recognize the cry of a child who is starving. It is a high, agonized wail, generically different from the cry of a child not getting its way. I never hear that cry of starvation in Havana Province, and never see anyone who looks malnourished.

Perhaps the most arresting feature of Cuban society is the racial harmony. It goes beyond anti-discrimination, for there appears to be no impetus to discriminate; people seem to get along (or not get along) without reference to color. Linda attributes this to interracial marriage, and it's true that Cubans come in all shades. But inter-marriage prevails throughout almost all of Latin America and, in fact, I am surprised

at the large numbers of people who are of unmixed blood. They live and work together with no apparent tension or effort. Even the sturdiest anti-government prople admit that this is the case. It is a wonderful thing.

We spend a day at the beach town of Santa Maria del Mar, once a private enclave, now a public resort. Here Cuban integration is palpable. Blacks and whites don't just share the beach (something we can't pull off in Boston). They mingle unself-consciously, cluster in mixed groups. I play volleyball with a white Cuban, a brown Cuban, two black Cubans, and a gym instructor from Quebec. We declare the game a tie, and trundle off for some ice cream.

I meet Adolfo on line at the ice cream parlor. First you queue up for the cashier. Then you give the cashier your order and pay for it. The cashier hands you scrip which you turn in to the counter attendant after you get through a second line. Adolfo and I both want milk shakes, receive little tickets marked "milk shake," and finally reach the appropriate counter, where they tell us there isn't any milk left. So we go back and re-do the whole process, this time with little tickets that say "ice cream."

Fellow victims, we silently wolf our orders. Adolfo leans back, pats his stomach, and asks me what I think of Carlos Santana, the American guitarist. This is home ground, so I sing the first few bars of "Oye, Como Va." Adolfo hoots, then sings the whole stanza. Then we both sing "Black Magic Woman" and "Evil Ways."

We take a long walk through Santa Maria, and Adolfo tells me about himself and Cuba. He was a sailor, he says, on a fishing boat that the Coast Guard boarded and towed to Miami. The incident was a cause celebre in the Cuban press, an example of Yankee high-handedness. Adolfo liked Miami. "I have eyes. I saw a beautiful rich city." I tell him I prefer Havana to Miami. "That's life," he says.

Adolfo is a hedonist and his "bad attitude" has cost him his seaman's permit. That's all right, he says, if you look at things in the long view.

"There will always be this planet, you see, waves on beaches. I die but I do not die. Do you understand?"

In the short run, though, Adolfo has a lot of complaints. He describes himself as apolitical, and says he appreciates the advances in health, education, and race relations. But he chafes under the current regime. "The police, man, what a bunch of fuckers! You can be standing in the door of your house without a shirt on and the police will yell at you to put on a shirt. If you don't, off to jail. I swear this to you. If you aren't carrying your identification card, off to jail! A friend of mine — a Catholic — was stopped by a policeman one day, and the bastard grabbed the crucifix around my friend's neck and ripped it off. Just ripped it off and threw it in the street!"

I say that black Americans report the same kind of abuse in Roxbury. But it's not just the police, he says, it's the whole system. If you're not a Communist, forget it. Communists drive the new cars, Communists get the new houses, Communists get the travel visas.

I tell Adolfo about Cecilia and her fervor for the Party and the Revolution. I ask him what percentage of the population feels the way she does. With slow disdain he holds up one finger.

"Listen," he says, "you must understand this. Communism is a religion, it is the religion of our times. It sounds good, of course it does! But it is like other religions: it exists to serve its priesthood. And this woman you speak of wants to be a nun. Oh, yes.

"Now Fidel Castro is no administrator. He is a prophet. He tries to impress everyone with his statistics — and he is a very intelligent man — but really, he is a prophet of this new religion. I respect him, but it doesn't work."

Other odds and ends from Adolfo. Cuban bellbottoms fall apart. Young people in Havana smoke dope mostly on weekends, and mostly as a prelude to making love. The lifeguards on the beach are Party hopefuls required to report any incriminating conversations they overhear. Russians are boors.

These things are hard to verify. Two other assertions he makes are patent. One is that despite all the propaganda for a collectivist spirit Cubans prize their individualism and tend to their private appetites. The other is that Havaneros like not working much more than they like working.

CUBA is a near-full-employment, labor-intensive society. One side of this is that almost every adult does something of some utility and gets enough money for basic physical needs. Another side is that productivity is a little slack.

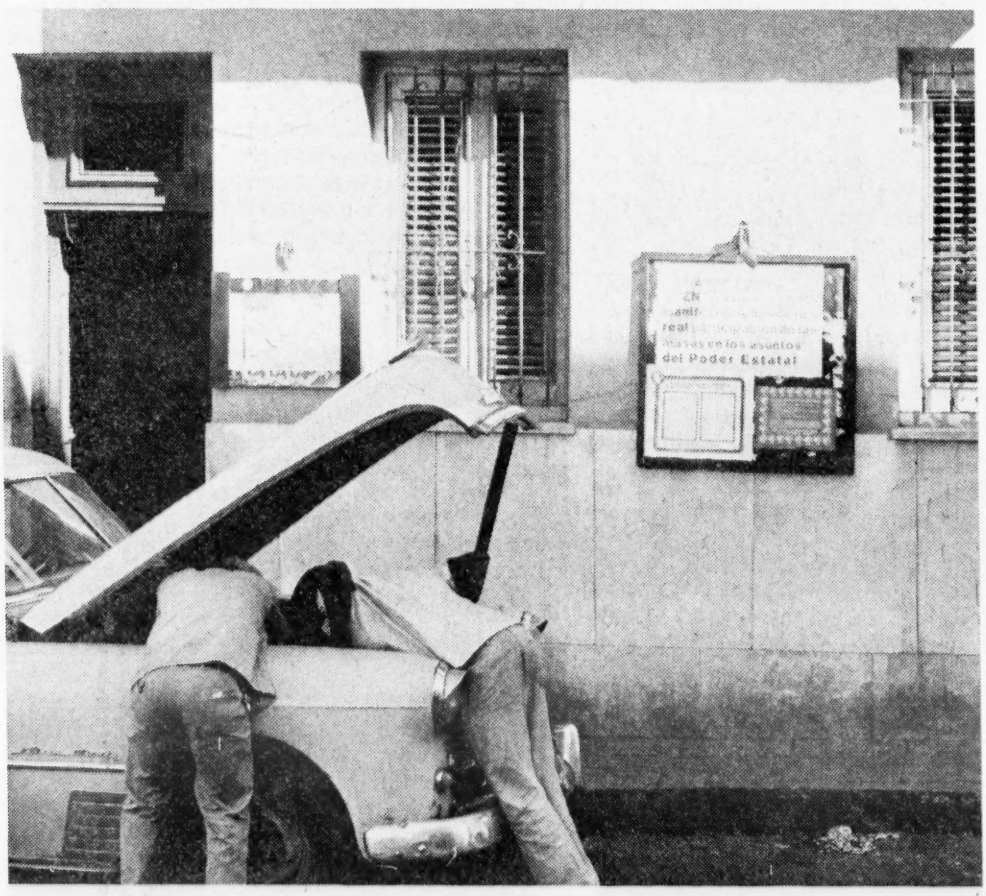
One man's job is to sit in a shack by the railroad tracks, way out in the country, and let motorists know when the train comes. The train comes by a few times a day, and the man strings hammocks for his family.

At the tourist hotel, an operator runs the automatic elevator. Food is served buffet style, but there are lots of waiters just in case. Men in olive coveralls rake pine needles from the ground beneath the trees, and very slowly.

Service attendants at stores and bars and fountains tend to spend much time waiting for supplies. For every one man working on a street gang, there are three guys looking philosophical. Lots of people just seem to be hanging out. "*Como anda?*" they ask: "How goes it?" "*Bastante bien,*" they say: "Well enough."

Incentive is a problem, and the question of inducing labor bedevils the Cuban economy. You can tell by the billboards. Exhortations to work, work, work; cartoons of busy bees; slogans like "Let's cultivate up to the last inch of land!"

Money is an incentive, of course, but you can't buy all that much in Cuba. Food and clothing are rationed and other goods are in short supply. Another incentive is to work for the common good, to labor for a better



Two guys fixing their 1951 Henry J. and catchy propaganda: "The rendition of productivity records is one of the manifestations of the real participation of the masses in the exercise of state power."

The Plaza de la Revolucion. Left to right, Marx, Engels, Lenin, Marti, Gomez, Maceo. "They will guide our revolutionary action."

future. There is evidence of this — university students chopping cane, for instance — but on the whole, not much. Sugar production, despite all the ballyhoo, has barely equalled pre-Revolutionary levels.

A new incentive system aims to reward workers for both productivity and "good attitude." (You hear the phrase "good attitude" a lot, and it gives pause to someone who attended Irish Catholic schools.) If a given sector of the economy is doing well, its labor union *(sindicato)* may select certain workers and supervisors as especially deserving of material favors: a radio, TV, refrigerator. The criteria for the reward are work performance and revolutionary dedication. On a lower level, the work unit — roughly equivalent to one of our union locals — makes similar decisions as to who will be nominated for new housing.

The result is that in some places you get rewarded for working hard and keeping quiet. In other places you get rewarded for coddling the local Party representative and putting up pictures of the Prime Minister of Angola.

The system requires an ant-army of bureaucrats, with forms and quotas and "educational materials." They are widely regarded as tedious pains.

One day Linda needs a restroom in downtown Havana. The man behind the desk at Hotel X says to try Hotel Y. The woman behind the desk at Hotel Y says she will have to check with the boss; she returns a minute later with the Cuban equivalent of the-boss-is-away-from-his-desk-right-now. A sympathetic onlooker suggests we ask a maid instead. The maid cheerfully shows Linda a restroom. The onlooker says, "Never ask a functionary for anything."

At each taxi stand in the city there is a man or woman whose job is to "supervise" the drivers and to check out every fare. One of them sticks her head into our cab and scolds the driver for not signing in between three and four o'clock.

"Where were you, comrade?"

"I was here, comrade, right here!"

"That's not true! You were not here!"

"Comrade, I must go," says the driver, and pulls away from the curb.

She is right. He was lying. Between three and four he was out making a black market run for some guys who play in a jazz band.

OPPOSITION to the regime assumes many forms.

A young woman watches me walk past her park bench. She calls me over. "Give me a peso," she says. I refuse. She notices the hotel stationery sticking out of my pocket. "If you're staying at the Marazul, you must be living well." That's true, I say. Is she living well? "No, my friend. I am living very poorly." Her eyes are uninviting, and I flee.

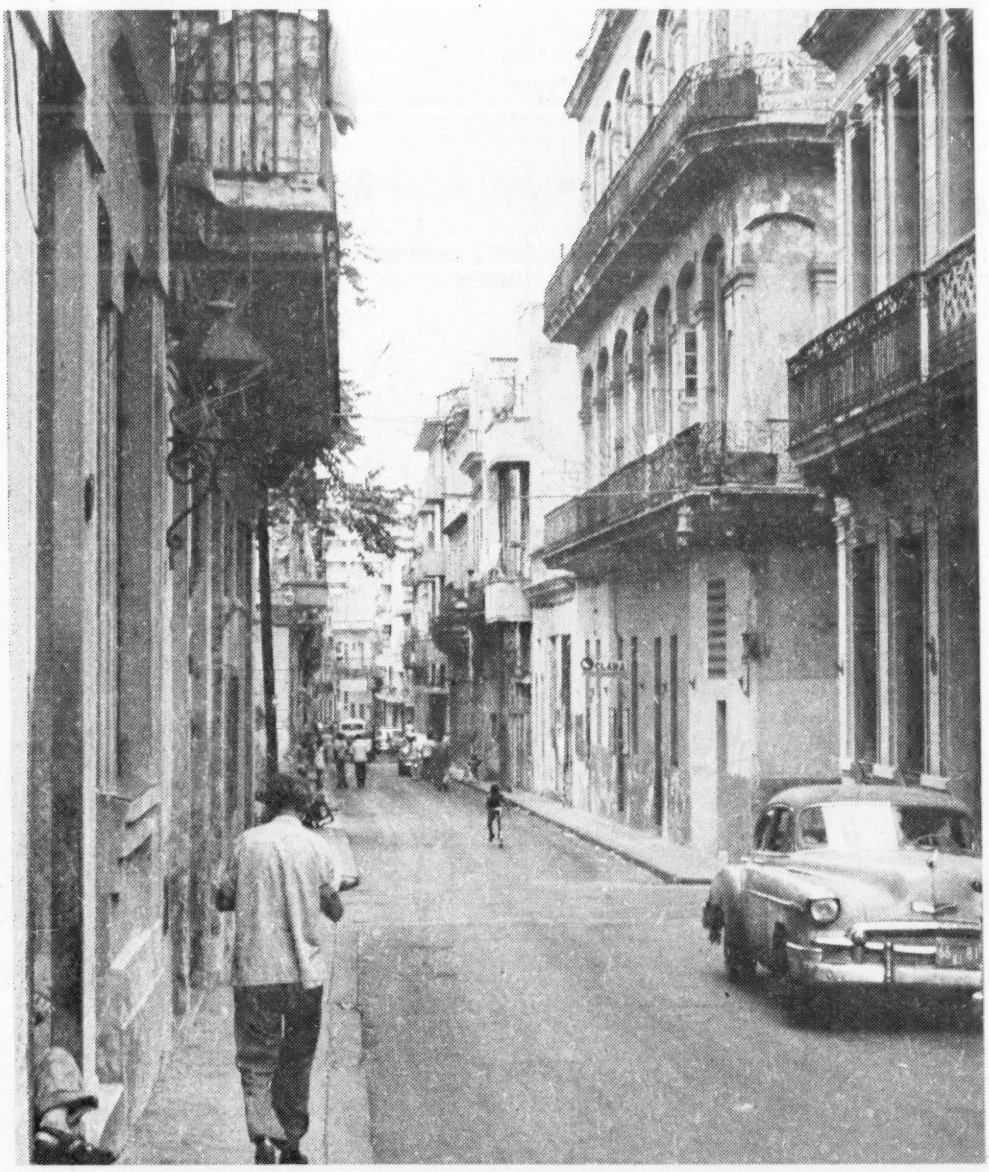
Jorge never misses the Voice of America. He keeps tabs on the struggle against Communism. Watergate baffled and saddened him ("Why did you get rid of that remarkable President Nixon?") and the coup d'etat in Chile perked him up considerably. He says there are only two hopes for the overthrow of Castro. One is an invasion from the United States. I tell him that would be implausible. Then, he says, we must take action on our own. He stares ahead, all drama and high purpose.

Pepe and Geraldo are musicians. They like to persuade foreigners to buy them flashy shirts in the tourist-only shops at the big hotels. They show you how to sneak ahead of lines at the restaurants and how to avoid the taxi cab supervisors. They have friends who help them out. Life consists largely of evading the rules. "Listen," says Pepe, "it's all right here, but I don't like all the foolishness. Did you bring American cigarettes?"

THERE'S not much kowtowing in Cuba. Thanks to the Revolution, it is now bad form to order others around, to call people "Sir" or "Madam," or to engage in non-subtle pulling of rank. Cubans and Americans are the most egalitarian people I know; both cultures are pretty good at thumbing the nose at self-importance. Cubans may be even better.

So it seems natural that Linda and I have become good friends with Inez, a waitress at the hotel. One day at breakfast, attracted by my Spanish and Linda's pregnancy, she stops by our table for a long chat. It ends with an invitation to spend an evening at her apartment.

The next day we travel twelve miles to Inez's housing project. The trip takes



A sidestreet off Avenida Zanja in Havana

fifty minutes by bus. Inez lives in a small unit of a modern, cement-block building in a new town called Habana Este (East Havana). Her place is simple, but cool and well-ventilated. She has indoor plumbing. Her taste in interior decorating runs with families I knew when I lived in Costa Rica: angular plastic furniture, Formica table, color prints of rural scenes and popular singers. Inez hangs a picture of Che where a Costa Rican might put the local soccer club.

Inez likes to talk about the weather, and the beauty of the countryside, and having children, and how nice everything is. She is not elusive, but has no taste for ponderous discourse.

Politics she leaves to her husband, Ronaldo. Ronaldo is the superintendent of the National Warehouse for Spare Parts of the Asphalt Industry. He is responsible for twenty-seven men who drive replacement parts to disabled heavy equipment throughout the island. He is a strong supporter of the government.

He comes from a poor country family in the province of Camaguey. Soon after the Revolution, Ronaldo moved to Havana and worked his way up to his current position. "I am a hard worker," he says, "and I do all kinds of work. I keep the books, yes, but I also do loading and stacking and even some welding. I work a lot and I eat a lot." He inhales three helpings of rice and beans and stew and tops them off with a chunk of flan mixed in with a half pound of cream cheese.

After a while, he cautiously asks if I have an opinion of the American economic embargo. I tell him I think it's foolish. And the war in Vietnam? Cruel and arrogant, I say, but remind him that the percentage of the Cuban population fighting in Angola is higher than the percentage of the American population that was stationed in Vietnam. The treatment of black Americans? Indefensible. And the multinational corporations? We'll dance on their grave.

I turn it around. Are there political prisoners in Cuba? Yes, there are still counter-revolutionary elements; not nearly so many as in the early days; very few, probably (actually, there are thousands). What of the Cuban press? I can understand why you would not like it. Why is public transportation so bad? Because of the American embargo.

I tell him that Cecilia says I am a bad socialist but an acceptable "progressive." He laughs, and we shake hands on it.

Ronaldo honors me with an invitation to see his warehouse. Off we go in a battered Citroen panel truck with two of his co-workers. Cubans are proficient car-poolers.

The National Warehouse for Spare Parts of the Asphalt Industry is a humble affair, a big shed with a small repair yard. It is nice and homey. Ronaldo keeps a fish tank by the front desk, and part of his extensive post card collection is on display. Scenes of Prague, New York, Paris, Moscow and Luanda. Also photos of Breshnev's visit to Havana and a poster that says "Men die, but the Party is immortal."

Paper work is done by hand, painfully slow to someone accustomed to American data processing. A driver has to haul a shipment to Cienfuegos. Ronaldo takes fifteen minutes to collect the appropriate forms. Let's see now, where's that bill of lading? OK, now where's that stamp? Hey, who took those papers the Ministry sent us? His desk is a big mess. The driver calmly smokes a cigarette while Ronaldo checks under paperweights and rifles his drawers. Once everything is assembled, Ronaldo transcribes all the data by hand. Slowly. Finally, all is done and the driver pulls away. Ronaldo turns to me and beams. "That was a big shipment, wasn't it? Three thousand dollars' worth!"

We return to the apartment, where Ronaldo shows Linda and me his stamp collection. Then he and Inez give us East German toys for the baby that's coming. He walks us to the bus stop where we wait thirty minutes for a ride back to the hotel.

FROM a bulletin board at the University: "Requirements for applicants to the law school —

e) the applicant may not maintain an active passport for the purpose of abandoning the country;

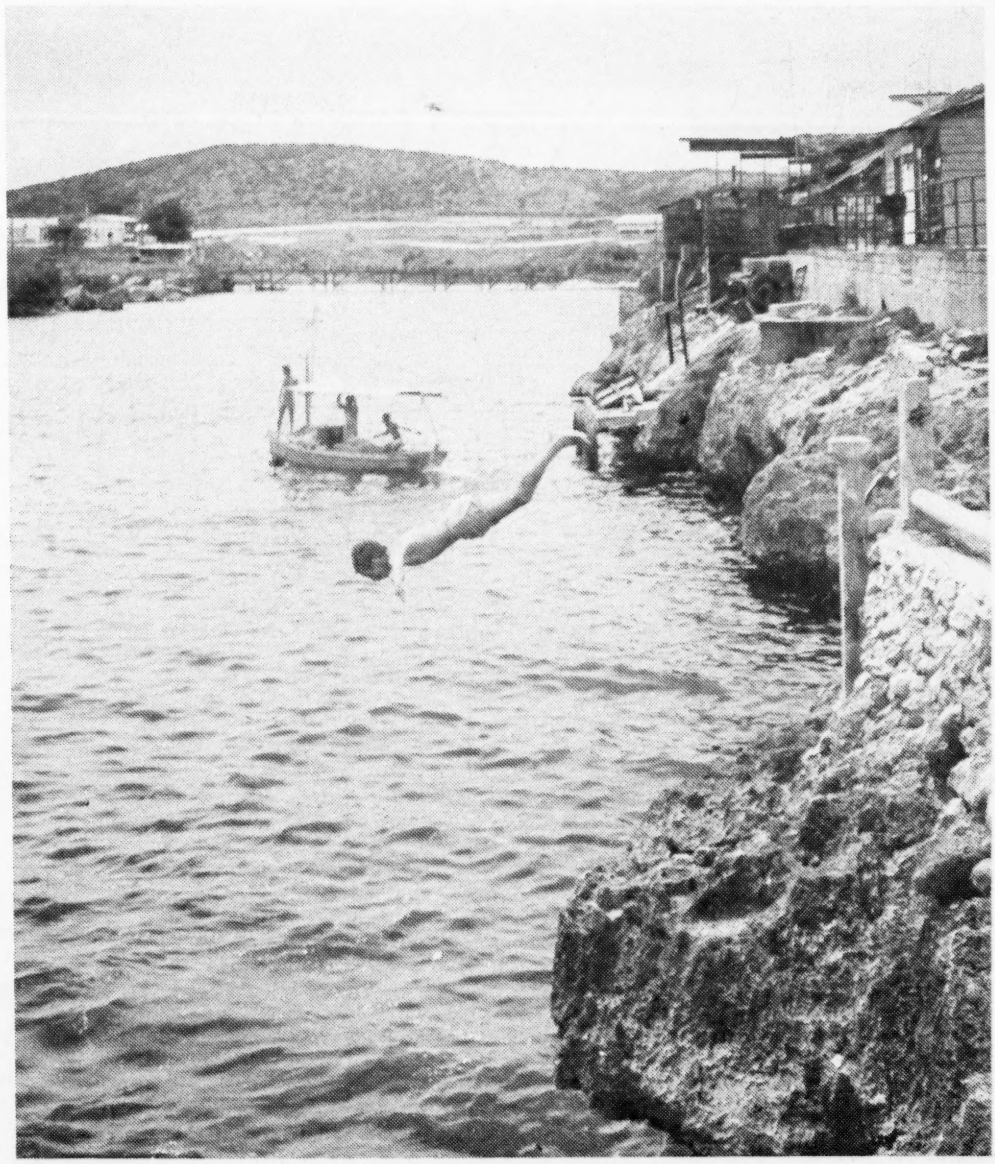
f) the applicant may not maintain relations with antisocial elements or with elements disaffected with the Revolution.

All applicants must be nominated by the organization in which they work."

And from a second-grade textbook in Santa Cruz: "Ernesto has 34 Soviet stamps. His uncle brings him 12 stamps from Moscow. He receives 15 stamps from Soviet students. How many Soviet stamps does Ernesto have now?"

ASIDE from the merchandising system and the social services, there is strong physical evidence of Cuban socialism. Once you get beyond Havana you see scores of new housing projects, all of the same mold: large cement rectangles. People say they like them. There is virtually no construction of individual houses, and the government encourages (some say coerces) the rural population into collective activities, which take place in other cement rectangles.

Santa Cruz del Norte. The boys diving insisted we catch them in mid-air. Cuban boys are not shy.



There are lots of new schools and recreation centers.

There is no private advertising in Cuba, which is a mercy. There is public advertising, however, although nothing on the scale of American salesmanship. Billboards urge you to work hard, save money, confront your "difficulties," and prevent fires. There is much enthusiasm for international solidarity. We are told that this year Cubans will work even harder, spurred by the sixtieth anniversary of the Great October Revolution. Angola is a battlefield in the anti-imperialist struggle. Lenin is "the genial teacher of revolutionaries."

Not many people read the newspapers. The sports page tells you all you'll ever want to know about Bulgarian weight lifters and the Hungarian sabre team. The international page gives you the lowdown on how "James Carter" will not succeed in hoodwinking the Soviet people.

Curiously, Fidel Castro appears to be an open, inquisitive man. He is willing to talk about some of the failures of the Revolution. His speeches are the best things published in Cuba, far-reaching and surprisingly flexible.

Is Castro's relative broad-mindedness a luxury reserved for the head-of-state? A Cuban tells me, "Once Fidel notices something wrong and criticizes it, fine. But God help the person who criticized it before Fidel got there." Or does Castro represent a larger element in Cuban Communism, a school of thought that welcomes some diversity and criticism? I can't tell. Official pronouncements in Cuba — newspapers, magazines, posters, broadcasts — are on a par with **Izvestia**. But Linda, who has spent time in the Soviet Union, says that Havana is infinitely more relaxed than Moscow or Tblisi. For that matter, Havana is more relaxed — and more diverse — than a lot of American cities I know. The staunchest Revolutionaries we meet, Cecilia and Ronaldo, seem adamant in their own views but interested in ours. They are good people, and very kind.

Maybe it's a question of the general and the specific. The overall Cuban ambience is loose and breezy. There is a lot of zest, even quirkiness. But when events occur within a politically-charged setting — job evaluation; university admissions; journalism; police work; administrative reorganization; cultural expression — you feel the cold hand of dogmatism and intolerance.

Perhaps the worst feature of Cuban society is the wholesale lying it encourages. The government deals in half-truths and uplifting nonsense. Workers twist their words to get a new apartment. Students lie to get promoted. When so much stress is placed on "good attitudes," the natural effect is to engender cynicism and play-acting.

THE last day we save for the country. We engage Anita, a young black taxi driver, to drive us through the rural sections of the province. Anita is a city girl and a little afraid of the cows that flank the back roads. I moo at one out the window of the cab, and Anita shrieks disapproval.

"I'll let you off right here," she says. "Behave yourself."

"Come on, Anita. They're harmless."

"I don't like animals."

"You don't like any animals?"

"Well, I like chickens."

"You do?"

"Yes. Fried or broiled!" She laughs and laughs and pokes my arm.

We go to La Sierra and talk with some old men on a veranda. Every boy in town comes by and asks for chewing gum and attention. We visit the old village of Jibacoa and the new Colonia Jibacoa, a model for the government's program of rural development. Then to Valle Elena, Valle de Picadura, Aguacate.

With the exception of Colonia Jibacoa, Cuban hamlets resemble those in Costa Rica. Small houses with roofs of tin or thatch, yards with chickens and flowers, rutted roads. The people are similar: ingratiating and a little shy. The differences lie in the extremes. In most small towns in Costa Rica, there's one or two ostentatious houses for the bank manager or large landowner. And there are always a few shacks where people live wretchedly. In Cuba, I see neither.

Cuba looks good here, amid the plain people and the unforgettable countryside. The land is rich, green and rolling. Palm trees sprinkle every vista, and nowhere are you far from the Caribbean. It is an extremely sensual environment.

The Cubans match it. This is the sexiest place I have ever been. There is no pornography, no confusion of sex and materialism. Just thousands flirting and touching. Cubans are an unusually beautiful people, and their bodies on a beach put Malibu far behind. They flaunt affection. Young people neck wherever convenient. More surprising are the endearments between parents and children, the hugs people exchange on crowded buses, the way an old couple sits on a bench, silently stroking each other.

One day, in the Plaza of the Revolution — a vast space for rallies and May Day parades — I am surprised to see only two people in the whole area. A man and a woman are lying against a police barrier. They are eating fried chicken. They alternately lick their fingers and kiss each other. The man salutes me with a drumstick, and calls me over. We have a nice little chat. ■

VALUABLE DEFICIENCIES

BY JOHN McKNIGHT

As Americans, we like to think of ourselves as the people whose hard work makes the world work. We are the people, in Carl Sandburg's terms, who make the steel, stack the wheat and butcher the hogs. We produce the things that really count – the real things like automobiles, computers, grain and steel.

Our image is not the reality. Most of America's employed people never touch an ingot, engine, transistor, hog or stack of wheat. The majority of us are teachers, bankers, therapists, salespeople, lawyers, consultants, motel keepers, doctors, clerks, counsellors, auto mechanics and bureaucrats. Instead of producing hard goods, nearly two thirds of us now derive our income by producing those soft things called services. Daniel Bell predicts that in 23 years, by the year 2,000, 90% of us will be service producers and only 10% of the employed Americans will be directly involved in producing hard goods.

This shift to a work force that produces services rather than goods is the culmination of a historic ideal. It is the fulfillment of an ancient dream – the liberation from hard work in order to do good works. We are finally free to devote ourselves to the good works of caring, curing and developing – work that serves rather than sweats. Freed of the physical labor that diminished humanistic potential, we have created a serving society.

There is, however, a hidden dilemma in the growth of our services. In order to provide universal work by serving each other, we will need *more* clients who need help, or clients who need *more* help. Full employment in a serving society depends upon more people who are understood as lacking, disabled, deficient – somehow short of the ideal. To develop a serving economy we depend upon more crooked teeth, family disarray, collapsing automobiles, psychic malaise, educational failure, litigious conflict and underdeveloped human

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John McKnight is the American that Ivan Illich is always advising other Americans to heed. And rightly enough, judging by this essay revised from McKnight's talk at the Conference for New Strategies for Education, Work, and Retirement, sponsored by the Center for Policy Process, April 1977 in Washington, D.C. He is a Professor of Communication Studies and Urban Affairs at Northwestern University in Illinois. As to reprinting his remarks, he insists: "The only restriction is that there is no restriction – I reserve the right to allow anyone else to publish them at any time."

–SB

A Service Economy Needs People in Need

potential. A society of fully employed servers needs more people in need. Our economic growth depends upon our capacity to identify more deficiency.

The growing deficiency market is now measured as a major national benefit. Our Gross National Product is increasingly a counting of the "productivity" gained from services purporting to deal with our "growing" deficiencies.

Consider your own value in a serving economy should you die of cancer next year. If you have a long, fully treated, "quality care" death, its value could appear within next year's Gross National Product as $250,000. There are very few people who can be that productive in one year, or several years.

Consider all of your other *valuable* deficiencies. There are those deficiencies that you perceive. There are those deficiencies you have been taught by your servers to perceive. And there are those deficiencies that you don't know you have but that your professional servers can identify.

In a serving economy, the sum of all these "deficiencies" becomes your human value. In an economy that counts the good works called service, you become the nation's most valuable commodity if you are sufficiently deficient.

A service economy needs people in need. This need for need helps to explain the three basic categories that have come to define American lives. We are EDUCATED, we WORK, we RETIRE. Each year, the number of people who are educated and retired expands. They are the majority of the "deficient" people who are said to depend on the service of those who work. The reality may be that the working people depend upon an increased supply of the young and old in order to work. This may explain why we extend the number of years of education required to secure a job and the necessity for earlier mandatory retirement.

Increasingly, a serving society depends upon young and old people who can be defined as problems rather than productive participants. The young and the old have become the raw material of a serving economy.

[more →]

A nation of clients cannot conceive of a democratic possibility, much less act in behalf of the common good. A nation of clients will accept the central premise of serving systems, i.e. "I will be better because my servers know better." This premise, embedded in any culture, is the basic foundation for authoritarian rule.

President Carter recently outlined the economic crisis that could result from our current patterns of energy consumption. The energy crisis would be a minor tribulation if we suddenly viewed the young and the old as competent, able, productive citizens rather than deficient, consuming clients in need of the good works of a serving economy. Ours is an economy fueled more by age specific "deficiency" than by oil. We depend less on the Arabs than commercialized deficiency, paid care, professionalized service and the allied managers, consultants, planners and experts that a serving economy demands.

An economy dependent on the good works of service creates a nation of clients – the recipients of good works. Fewer and fewer people can be called citizens – people who do good work. On the other hand, a democratic society requires citizens rather than clients; people who are competent rather than deficient.

A democracy is the sum of the good work of citizens with the capacity to solve problems.

A served society is the sum of the deficiency that "enables" people to be clients.

If we are unable to free ourselves from the ideology of service, we will die of our dependence on deficiency. A nation of clients* cannot conceive of a democratic possibility, much less act in behalf of the common good. A nation of clients will accept the central premise of serving systems, i.e., "I will be better because my servers know better." This premise, embedded in any culture, is the basic foundation for totalitarian rule.

If there is to be a democratic American future, it will require us to reject the "humanistic" vision of a nation of clients "consuming" the good works of a serving economy.

A nation of citizens doing good work must also recognize the limits of its capacity. We live in a world of limited resources, capital and relationships. Our capacity to solve problems is limited. We will always suffer. We will die. These limits are the boundaries of our possibilities.

The grand illusion of the serving society is to deny these limits. While the service system feeds on the purported deficiencies of its clients, its propaganda insists that serving systems will ultimately break through the limits and deliver us the freedom to be whole.

The service systems' basic proposition is that its good works will finally make anything possible. In this claim, it is the new God of a nation of clients. It offers a Faustian deal. In exchange for our incapacity, we are offered utopia.

There is, however, another possibility. It is the possibility of citizens enabled to solve problems within the limits of their capacity. It is the possibility of creating communities of mutual support and obligation. It is the possibility of creating tools that make rather than control. It is the possibility of justice and equity.

A democratic society *needs* to reject the utopian promise of incapacitated clienthood. Our democratic possibility depends upon citizens who believe in their capacities and understand their limits. If we are to persevere, we will know that citizens are people with the incredible possibilities of failing to be God. ▪

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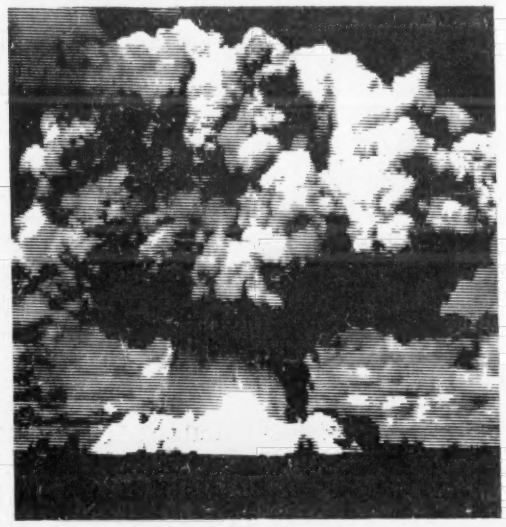
*The Latin root of the word "client" is a verb which translates "to hear, to obey."



Another cure for the Arms Race

Maj. Gen. Frank Schoeber, Commandant of the California National Guard, explains the matter this way:

The Arms Race is not what most people think it is: threat countering threat culminating in an eventual obligatory showdown. It is a substitute for conflict – a contest of capabilities. The subject of the contest is weapons and troops because that is something the USSR is good at. Maybe the only thing in which they are really competitive. In the various Races of space, science, agriculture, literature (lately), ideology (versus, say, China), etc., they do not lead.

I agree with Frank, and if I read my snippets of Russian history aright, Western Russia, at least, organizes a lot of its culture around being competitive with the rest of Europe. So does America.

Therefore the solution to the Arms Race is to find something else besides military might that the Soviets are good at, better than us maybe, and let ourselves be drawn into a contest in that. With any luck we'll lose but keep trying, and the Arms Race will fade from view.

Do you have any suggestions for an alternative Race?

This is the third structural solution to the Arms Race proposed in these pages. The other two (Spring '76 CQ) were the Boulding-Kahn "Make Plutonium Taboo" religious/tactical strategy, and my cybernetic "Make Sure that the Underdog Always Wins" trick.

Three possible solutions to the awfulest thing around. No action yet. What's the damn delay?

–SB

Loathing metric

Some quotes from the July 16, 1977, Science News*:*

"I think installing the metric system is one of the most idiotic things the government can do. Have you gone completely crazy?"

—Marjorie N. Evarts, resident of Hamden, Conn., 1977

•

A recent Gallup poll indicated that 74 percent of Americans are "aware" of the metric system, but only 29 percent of them favor the country's conversion to it. More revealing, perhaps, is that only 13 percent of all those polled could give the correct number of inches in a meter, and only 1 percent knew how many liters are in a gallon.

A few weeks ago, the Federal Highway Administration abandoned, for the time being, its intention to convert highway speed signs to read in "kilometers per hour" by 1980.

•

Good thinking. It would be expensive to continually replace signs cut down by enraged citizens.

It's also interesting to note that scientists are increasingly apathetic about metric temperature measurement in degrees Celsius, which has half the resolution of degrees Farenheit, and no advantage.

–SB

Recombinant DNA and trouble probability

Dear People at CQ:

I found your article on recombinant DNA by J.D. Watson interesting. There was a recent editorial by Richard Goldstein in the New England Journal of Medicine (May 26, 1977) about recombinant DNA research in which several of the issues addressed by Watson are discussed and a rather different conclusion is reached.

A few of the issues stand out in my mind. Watson says, "The general rule seems to (be) . . . that once you've domesticated a bacteria or a virus . . . it loses its virulence." The editorial points out that "though the likelihood of exchange (of DNA) from the genetically enfeebled strain has been markedly reduced, it still may occur. The vast sea of microorganisms in the environment makes events whose probability is the reciprocal of Avogadro's number (i.e., $1/10^{23}$) not impossible." The editorial goes on to say "here we have the potential for a unique form of pollution, biologic pollution, and it will be distinguished by its irreversibility. . . . Microorganisms will reproduce and perpetuate themselves. They cannot be recalled." Perhaps the use of a "general rule" in regard to this issue is not appropriate.

Watson points out that "evolution hasn't stopped." True enough. He says, "The world is changing all the time." Also very true. But it seems to me that as a general rule (to use Watson's phrase), evolutionary changes are slow . . . in the order of hundreds or thousands or millions of years. The editorial points out that recombinant DNA studies may have the capacity to "rearrange the genetic heritage of millions of years" rather rapidly.

I like the conclusion of the editorial – "The societal benefits that may well arise from gene transplantation studies will be valuable whether they come in 20 years versus 25, or 50 years versus 55. These benefits and the sheer excitement and beauty of scientific endeavor will endure for centuries thereafter. For five or 10 years now, a slow, thoughtful approach to limiting hazards makes sense in terms of progressive public-health policy." It seems to me that as a society, North Americans tend to be in such a rush about so many things. Perhaps that is just another symptom of lack of simplicity in living . . . and greed, too. Whoever finds a way to be First to market some of the potential benefits of recombinant DNA research stands to make a large pile of money.

Watson's final point – that fire retardants in Children's Clothes is a danger – is true enough. But it really doesn't take much intelligence to see that the existence of many dangers in our world today does not in itself justify the introduction of yet another danger. How come Watson's thinking is so cloudy?

Anyway – I really enjoy your magazine. The article by Elisabeth Kubler-Ross is so exciting. Do you know that she has made tapes of many of her talks? We have 5 of them in our hospital library but I don't know where we got them from. Perhaps if you could find out, other people would be interested in hearing them.

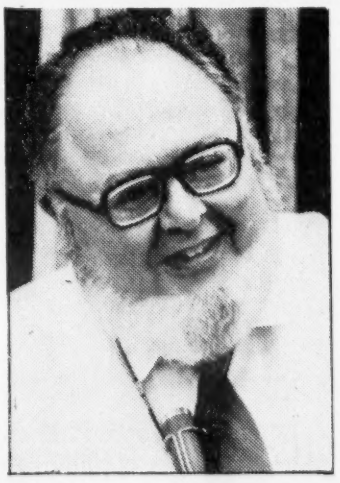
Do have a fine day,

Valerie Goldin, M.D.
Hope, British Columbia, Canada

For the 300-lb. neo-Stoic

Please pass along our concern regarding Herman Kahn's weight. It's likely to kill him and deprive all of us of one of the few visible examples of an honorable, humane, humorous human being.

Seabury A. Lyon
Sharon Burton
Beacon, New York



Neighborhood Preservation is an Ecology Issue

BY STEWART BRAND

SAUSALITO HOUSEBOATS AT WALDO POINT, seen from atop the Charles Van Damme, *one of the four grounded ferry-*

What bulldozers do to an existing human community is no different from what they do to any other climax biological community — wetland, woodlot, or streambed. A complex mature meta-life is crippled or killed and replaced by a simplistic early successional non-community, and then at great expense kept that way.

The process is always called improvement.

To measure whether it is improvement, count the variety of life before and after. Count the number of species. Count the number of kinds of people, kinds of jobs, services, interactions, ages, incomes. Decrease in variety is ecological damage. It's called improvement because it isn't.

Just now my neighborhood, the houseboat community in Sausalito, is being developed toward death. The bulldozers and protesters and cops are 50 yards from our door. Where the hell are the environmentalists? This area, Gates 5 and 6 of Sausalito, is perhaps the most densely textured human community in the Bay Area, and it's decidedly unique, which is supposed to be valuable. There's been some help — letters of support from the Sierra Club and the Marin Conservation League. And other beleagured neighborhoods — the International Hotel, Japan Town and others — have expressed solidarity.

But if someone was proposing to convert the wild sea lion herd on Seal Rocks by the Cliff House into a zoo ("It actually will be a benefit to the animals, they'll have food and supervision"), there would be a lot more public outrage, and much clearer laws would be invoked in defense of the wild animals.

I draw that parallel carefully. The houseboats of Sausalito are an Outlaw Area which is not zoned, up to code, policed particularly, connected to the city services, or occupied by entirely law-abiding citizens.

We are implacably not tidy, and there lies, I suspect, the reason why some environmentalists fall on the wrong side of the issue. The same environmentalists who inveigh against unsightly (energy-conservative, low environmental impact) trailers, or Christo's

CARDBOARD PEOPLE, created by the Snake Theater, stand perpetual vigilance in defense of a cat-tail creek threatened by conversion to a parking lot.

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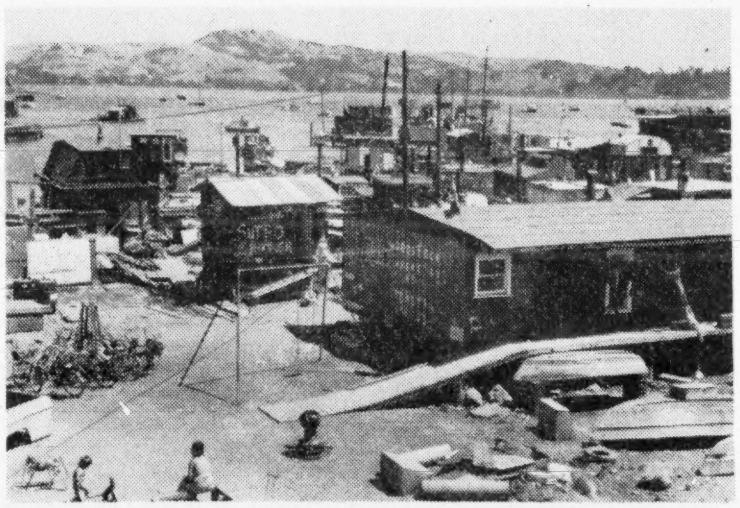

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boats in the area. Far left is the Issaqua, *far right the* San Rafael. *In the center front is a children's playground. Just out of sight at the far right is the* **CQ** *office, on dry land and out of contention.*

Running Fence, or outhouses, also usually want to eradicate houseboats. They are enforcing taste and calling it ecology.

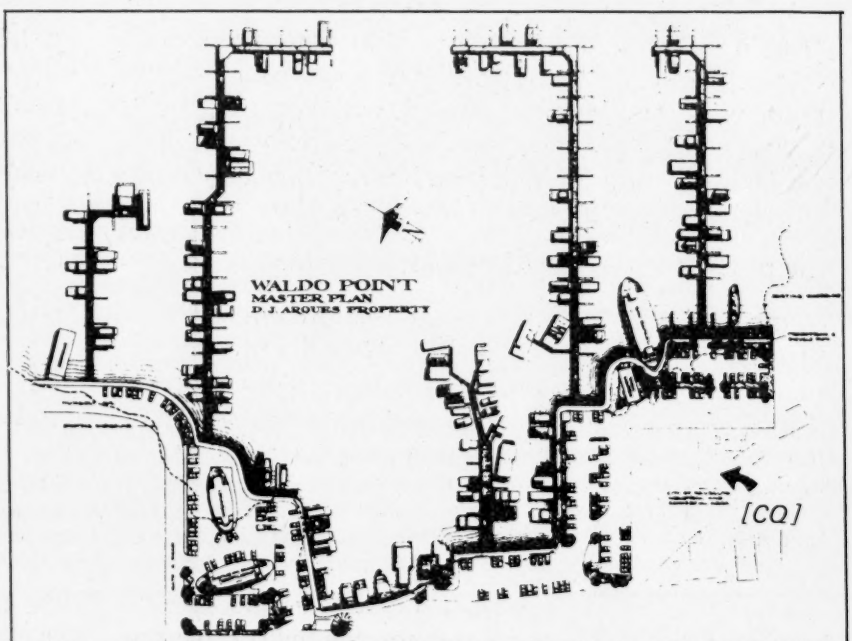
Marin County, a famously environmentally-conscious principality, has been at war with the Sausalito houseboats since the late '50s, primarily on the issues of tidiness (permission, safety, uniformity, sewage, predictability).

You can have tidiness or wildlife, not both.

Listen to this quote from John Burton's column in the British journal **The New Scientist** (2 June '77) with an ear to its human application:

> The result of our mania for tidiness is a loss of wildlife. If the parts of the parks and commons not required for sports fields were mown but once a year, perhaps we would see the reappearance of the rich meadowland and open downland flora which has disappeared from so much of

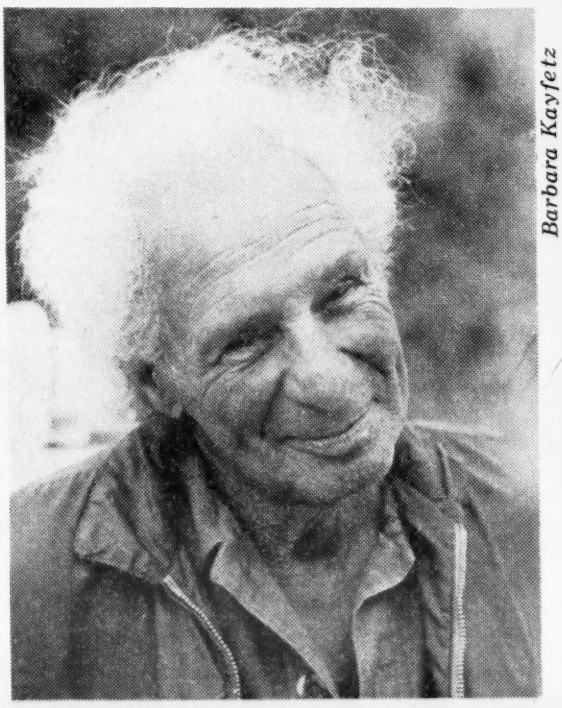
Text continued on page 44.



THE PROPOSED DEVELOPMENT. Ovals at lower left are the ferries Charles Van Damme *and* Issaqua. *At right is the* San Rafael. *The dock at far left has already been constructed.*

Barbara Kayfetz

END of the cardboard people and of the creek.



Barbara Kayfetz

PIRO CARO, 76, old friend of Paul Goodman's, the houseboats, and freedom.

Brand

THE FUTURE. Just 50 yards away from the old houseboats is this new development, the Kappas Marina, which the native esthetic finds "of deadly ugliness; odious, intolerable" (Piro Caro). One of the **CQ** *staff, Anne Herbert, lived here for four months. An uncommonly gregarious person, she got to know exactly no-one, because no-one lives at Kappas. The houseboats are expensive "joke-houses" with waterbeds and multiple bars for occasional parties and shack-jobs. A high proportion are always for sale. This kind of development combines the worst aspects of a dormitory and a trailer court. What it is selling – high – is the illusion of living the old houseboat life, which it has killed.*

Auto traffic used to bump carefully through the organic chuckholes around here. After the expensive depressing asphalt parking lot was put in at Kappas Marina with stalls and traffic lanes and water-intensive landscaping, they found the cars went dangerously fast and so speed-bumps were added – artificial chuckholes. Those nice straight speed bumps – one nearly gutted a state car I was in the other day – are the grand metaphor as far as I'm concerned for this whole sorry sequence.

THE LAWS OF DEVELOPMENT

1. **Permanent is temporary.**
2. **Temporary is permanent.**
3. **What you attempt is what you will be denied.**
4. **The weeds laugh last.**

A Brief History of the Neighborhood

by Peggy Shaw

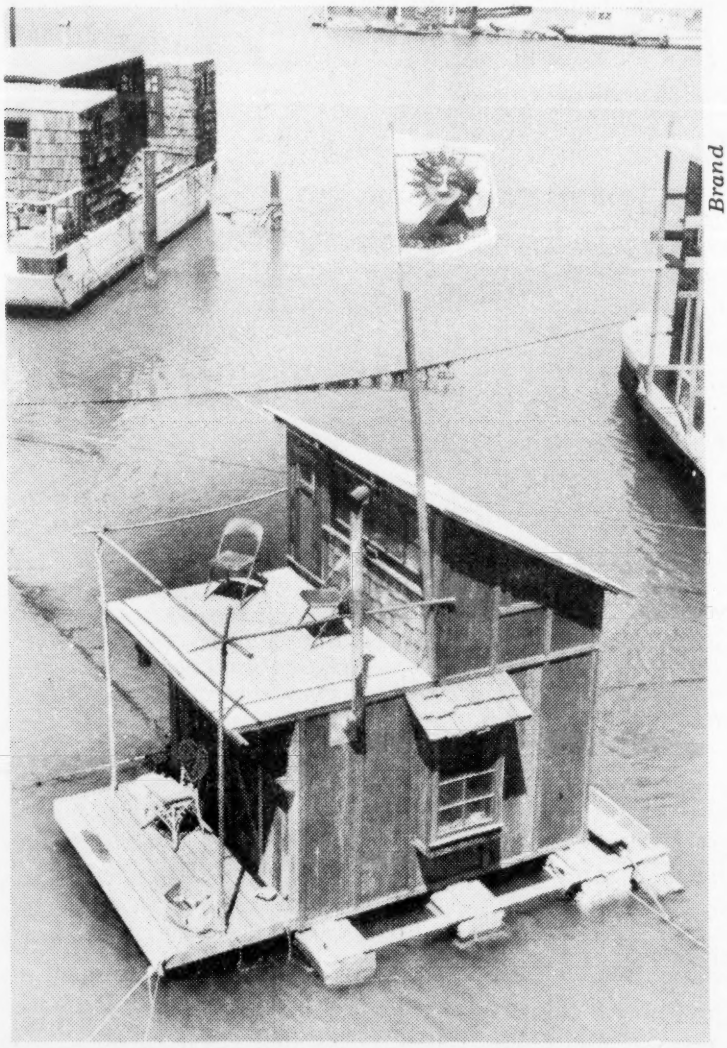
The Sausalito houseboat community at Gates 5 and 6 in Marin County is a relatively new phenomenon. Until 1956, the Waldo Point area was occupied by shipyards, first owned by the Arques family (father and then son) from 1915 until the war years, when it was taken over by the federal government from Pearl Harbor to 1945. In 1945, Donlon J. Arques took it back again and maintained a loose control over his lands. It wasn't until 1956 that families began to move their homes into the area.

In 1956, Tashi Monroe and her family moved to Gate Five, "The *San Rafael* Ferry was the only thing here, then," recalls Mrs. Monroe. "There was much more water. Clear water and grass. My dock ran way out," she says, gesturing toward the highway. "You couldn't walk to my house except on the dock which ran clear out to the middle of a field which was there until Dick York (a neighboring land owner) moved in. We used to water ski here. My children grew up in the wilds."

The area has undergone enormous changes since those days of grass and fields and clear water. Until the early sixties, the waterfront at Gates 5 and 6 was inhabited by only a couple dozen families, most of them with children, according to Mrs. Monroe. Then, in the late sixties when the Haight-Ashbury district in San Francisco was becoming less flower-conscious and more drug-oriented and dangerous, disaffected "hippies" wandered across the Golden Gate Bridge in search of a place to live. Tar paper shacks sprang up and old barge bottoms were scrounged from the leavings of the World War II. Individuals found or purchased life boats, turning them into tiny houseboats or built homes on the salvaged barge bottoms. According to Piro Caro, 76, who has inhabited the abandoned *San Rafael* ferry for some fifteen years, these somewhat wilted flower-children brought with them few skills. It was Caro who loaned them tools and aided them in their attempts to create dwellings for themselves. Many of them combined artistic whimsy and newly learned skills with available reusable materials to produce "architectural gems." These newly arrived creators were left virtually alone by the owner, Don Arques, as long as they agreed to accept responsibility for their own maintenance. Since the property was privately owned, these new builders escaped berthage fees, rent payments, and were largely ignored by Marin County. Houseboat building codes were not drafted by Marin County building officials until 1968 when they realized the potential "danger" of such a rapidly growing waterfront community.

The late sixties to the early seventies were what Tashi Monroe calls the "dangerous period." With the rapid influx of such a large number of people during an era of political and social upheaval nation-wide, the situation on the waterfront did, indeed, draw its own group of drug-oriented drop-outs. This was a period of intensity about which circled a large number of unfocused sixties drifters who did little for the reputation of the area.

The County of Marin, seeing the area as uncontainable and potentially dangerous, attempted to abate out the newer "houseboats" in 1971, an episode known as "The Battle of Richardson Bay." Aided by the Coast Guard and local law officials, the County, under the direction of Richard Larson, Marin County Marine Building Inspector, attempted to "take" the community by water. This tactic met with



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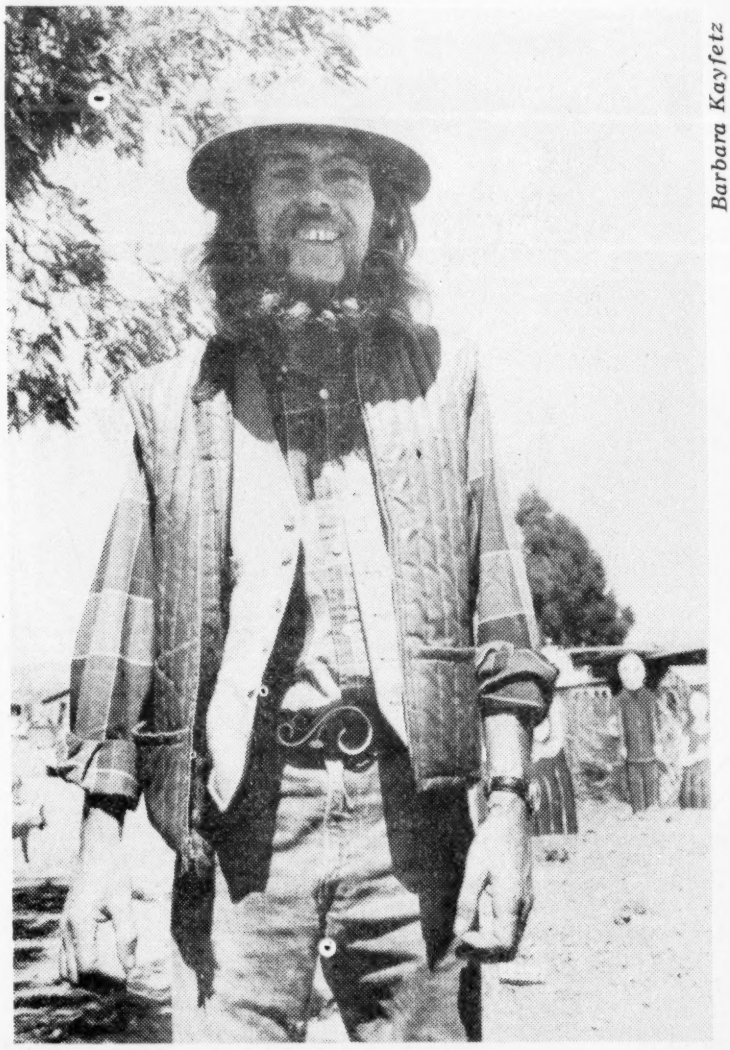
FLAG WAR. A houseboat too small and otherwise strange to meet the houseboat code flies the WPA flag. Other houseboat owners who would meet the code and see some advantages in new docks and quasi-legality for a change have been flying pink flags.



Barbara Kayfetz

with white hearts to display their support of the development.

A WPA DEFENDER, Peter Day, sculptor, houseboater, and creator of Peter Day.

such determined resistance from the, by then, established and committed waterfront dwellers that the County gave up the idea and left the area and the owner Don Arques alone for about six years.

In a March, 1977, interview with the **New York Times**, Richard Larson, referring to the houseboat community as the "Kowloon of the West," stated that in the past the County's policy had been to abate out the houseboaters (by enforcing the 1968 Houseboat Codes) but that now the "new policy is to develop them out." Arques was once again threatened with legal action and fines for maintaining on his property a menace to the public health and safety. "I didn't ask these people to live on my land," he said in an interview with Waldo Point newspaper **The Garlic Press**, "They can save themselves. I've got to keep the County off my back. They're going to fine me a thousand dollars a day."

In July, 1976, Arques leased his property to developers William Harlan and Lewis Cook, who formed an investment corporation known as Waldo Point Harbor, whose intention was to build an organized houseboat marina. This plan was met with concern by the current waterfront residents when it came to light in January, 1977. Due to prior resistance in 1971, the new lease was kept from the residents until the **Marin Scope**, a local weekly newspaper, carried a report of its existence. A self-appointed group of residents, lead by Piro Caro and John Donovan, conducted an area-wide survey of attitudes about the development. The survey, drawn up by Lester Schlesinger, resulted in statistics which indicated that 92% of the 350 residents who occupied some 200 boats opposed the master plan proposed for the area.

These figures were presented to developers Harlan and Cook in February along with a demand that the plan be reassessed and a request for a thirty day moratorium on all work. Cook and Harlan agreed to these requests and residents began a series of dock meetings begun for the purpose of obtaining community input of feelings on the issue and possible alternative plans. Two meetings were called during the moratorium with the major County and other regional groups who would have to approve any new plans. Only changes in the landscaping plans met with agreement among the representatives from the Marin County Department of Public Works, the County Board of Supervisors, the County Planning Commission, the Bay Conservation and Development Commission (BCDC), the developers and Waldo Point residents.

The developers feared that major changes in their already officially accepted plan would precipitate an Environmental Impact Report (EIR) required by the State of California, and resisted such suggestions.

On April 4, 1977, those residents who were negotiating with the developers demanded that Harlan and Cook commit themselves to major plan alterations, and guarantees that no one would be priced out of the area. The developers' attorney, William Ziegler, refused to negotiate further on these two critical issues. That evening the Waterfront Preservation Association (WPA), was formed to resist the development. Three days later the WPA filed suit against the developers and Marin County and received a Temporary Restraining Order (TRO) from Marin Superior Court Judge Joseph G. Wilson blocking further construction.

Since that time, there has been an impasse between the County and developers and the WPA. Members of the WPA have met further development by Harlan and Cook with both physical and legal resistance. The work on the development has been all but halted by residential resistance to the extent that the developers have only accomplished three weeks work in seven months. The work does, however, inexorably continue and the WPA maintains its determined vigilance in protecting the existing waterfront community. ■

Chronicle photo by John O'Hara

36 ARRESTS in two days and a continual presence of scores of police was the result of standing in the path of the bulldozers.

Brand

SLAYING THE KAKA DRAGON, State Architect Sim Van Der Ryn being interviewed by the San Francisco CBS station after inspecting the new drum and vault composting privys in the houseboat area. Sim found them to be one of several workable alternatives to connecting to the city lines or pooping direct into the Bay. He also is a supporter of experimental-housing codes which may help protect areas like this.

of rural England. This would also provide habitat for a wealth of wildlife — small mammals, amphibians, reptiles, butterflies and birds. Similarly unmutilated trees would not only be aesthetically more pleasing, but provide food and shelter for wildlife. Leaving dead timber also provides habitat for insects and birds alike.

Why not then? Dead timber it could be argued is a risk — but then so are cars in parks; I suspect there are more people injured in parks every year by cars than falling timber. No, I believe the real reason is that all the local government departments concerned are trying to show that they are doing their job. After all the rate-payer will find it very difficult to assess value for money if the local parks department were to encourage natural vegetation to take over — but it is all too easy to present facts and figures on the number of acres mown, the number of trees pruned and so forth.

Does the British public really want acres of mono-cultured grass?

Does the American republic really want sea to sea monocultured culture?

What I'm claiming is that a well-defined mature Outlaw Area like the houseboat community performs innumerable useful functions for Marin County. As the community elder, Piro Caro, has remarked, a portion of this area houses and feeds and successfully rehabilitates a considerable population of people who otherwise would be expensive wards of the county in the jails, reform schools, hospitals, and various do-good programs. Here, in native low-cost housing (rare in wealthy Marin), society's bad bets become capable of taking care of themselves. They learn in their own terms with their own mistakes how to do design, construction, family, community, and neighborhood self-defense.

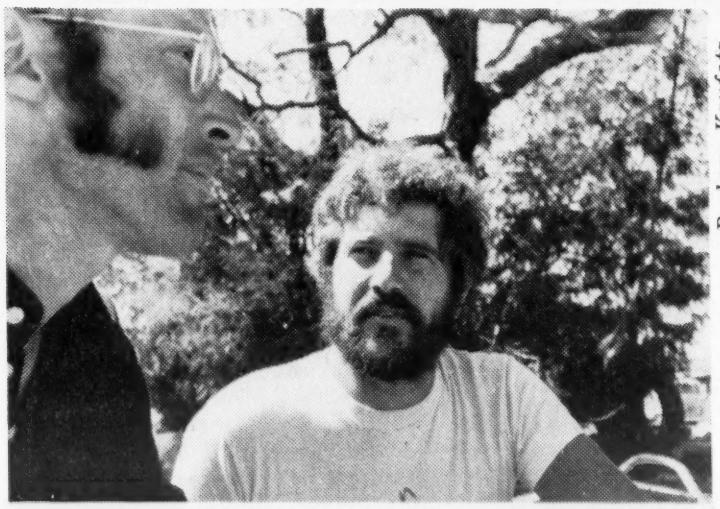
If we endure the destruction of this familiar Outlaw Area which is so highly co-evolved with the local scene, then it will necessarily re-emerge elsewhere in a rawer and more harmful form, ahead of the law again and much more highly disruptive.

Let the tension remain where it is. Battles with the county over sewage have led, in time, to innovative drum privy systems. Battles over building codes have led to experimental-dwelling codes. And so forth indefinitely, if grudgingly permitted. This tension is a creative one which will yield social inventions and entertainment and variety for years. If fought with respect. If not improved out of existence.

There is an unacknowledged division in the environmentalist world between the garden (nice view) environmentalists and ecology (whole system) environmentalists. It is a false division. Through the vigorous gene pool of "weeds" the creative possibilities of exploitable plants and disciplined landscapes are kept open. In wildness, we keep quoting, is the preservation of the world.

There is a yeasty creativity in the houseboat community which enriches this whole region. In some cybernetic advanced subtle way our "disorder" and the surrounding "order" inform each other to livelier life, as does any biological patchwork.

Neighborhood preservation is an ecology issue. Count the variety. If it's going to be diminished, start phoning. ■



—Barbara Kayfetz

WPA DEFENDERS, environmental lawyer Paul Kayfetz of the "Green Mafia" (right) and John Donovan of the "Mudflat Minions" (left).

Living Lease

by Michael Phillips

Could cities look significantly different with just a social minor change? I think so. More than 60% of all housing units in cities are rentals. It's hard to make capital improvements in a place, or really upgrade your home if the consequence is being kicked out or having your rent raised. Not to mention the unreasonable horror of being evicted from your "home" to make room for your landlord's cousin. If tenants had leases that gave them security similar to ownership wouldn't that have an effect on the way cities look?

The Living Lease has many of the qualities of a conventional business lease where both parties are fairly equal. Rent increases are based on open books, improvements are depreciated over their lifetime, and termination of the lease requires increasing notice and increasing compensation to the tenant as the years go on. ■

1. PURPOSE OF THIS LEASE

A person who rents a "living space" is entitled to have as much emotional and legal security in connection with their living space as a person who "owns" their own living space. Upon that belief this lease is drawn up between Michael Phillips, the owner of 62 Stanton Street and Don Sachs, tenant of the downstairs apartment.

2. TERM: How Long This Lease Will Last

From this date _____ forward this lease shall be in effect so long as Don Sachs is alive, and so long as all other provisions of this lease are met. This lease ceases with Don Sachs' death or as provided under termination in Section 4. However, this lease continues in force as an obligation of the estate of Michael Phillips in the event of his death except as noted in other provisions of this agreement.

3. RATES: The Rental Rate For This Living Space

Rent is $150.00 per month, for the space described in attachment A, payable in advance on the first day of every month.

A) Deposit: A deposit of $150.00 shall be made at the beginning of this lease and shall be returned to Don Sachs upon termination (a) if the rental space is in a clean condition, or (b) if it is unclean the cost of hiring a person to clean it and return it to the original condition shall be deducted from the deposit, however if four years shall pass from this date the deposit shall be refunded to Don Sachs.

B) Change in rental rate: The landlord shall be able to raise or lower the rent at any time with 30 days notice in writing to Don Sachs if he can demonstrate a real sustained change in the cost of providing the living space.

C) Demonstrating a change in expenses: Shall consist of a comparison of all present costs associated with the rental space (such as utilities, property tax, mortgage interest, maintenance) and the new costs in effect. On a percentage of space used basis, the actual dollar costs (or savings) can be passed on to Don in monthly rent. This comparison shall be in writing. If Don protests the change in rates, he shall nevertheless pay it along with the regular monthly rent payments and any difference determined by arbitration shall be returned to Don.

(Example: Rent in 1980 is $200 per month, and all associated costs are $108 at that time; in 1984 Michael Phillips notifies Don that costs are averaging $128 per month and in 30 days the rent will go up to $220.) Don Sachs shall have the right to see the documents and costs involved once a year upon request and Michael has 30 days to prepare them. Rental rates shall go down in a similar manner, if costs go down.

D) Late Rental payments: Don shall have 5 days after the 1st of the month to pay the rent. Thereafter there shall be an automatic $10 penalty for late payment. If no payment is received by the 15th of the month, the Termination clause of this agreement shall take effect; the only exception to this is total mental incompetence which shall be handled by dealing with Don's legally authorized agent.

4. TERMINATION: How This Agreement Shall Be Ended

The form of termination and the conditions of termination shall change with the length of time the agreement has been in force. The following table describes the relationship between termination and the length of occupancy.

Years of Occupancy	Amount of termination notice to be given	Settlement	Reasons needed for Termination
0 to ½ yr	15 days	None	Any reason, including whim or intuition
½ to 2 yrs	30 days	None	Any genuine reason, given in good faith, in writing, concerning the relationship of the two parties involved
Beg. of 3d yr. to end of 10th yr	1 mo. for every year of occupancy, OR settlement	Basic 2 mos rent + ½ mo rent for ea. year of occupancy greater than 3 yrs (i.e., 7 yrs occupancy = a 4 mo rent settlement).	Same
Beg. of 11th yr to death of Don Sachs	1 year's notice + settlement	1 month's rent for ea. year's occupancy up to 25 years	Only on sale of property, violation of agreement or death of Michael Phillips

NOTE: Rent is calculated from the average of the prior 12 months rent.

5. Capital Improvements: Painting and Fixing Up

Any "capital" improvements made by Don Sachs must be approved by Michael Phillips in advance if they are to meet the provisions of this clause. Michael's approval is not subject to arbitration. An improvement will be valued at cost (excluding free labor) and a rapid depreciation schedule shall be agreed upon. If termination of this agreement occurs before the end of depreciation, Don shall be reimbursed for the balance of the depreciation. Example: A new formica sink top is installed at a cost of $120. Normal life is figured at 7 years, but rapid depreciation is 4 years. Don leaves after three years, he gets back $30.

6. Occupancy, Privacy, and Neighborliness

The "living space" shall be occupied by no more than two persons except for guests. Should a guest stay more than one month, each successive month shall require the permission of Michael in writing.

Don shall be entitled to as much privacy as possible. Michael shall have access to all of Don's living space, by knocking on the door or entering in his absence during the first year. Thereafter he shall have a right to enter only (a) by knocking when Don is home, (b) by more than 6 hours notice to Don before entering if Don is not to be home or (c) he may enter with no notice in emergencies, where immediate access is necessary to repair damage, stop damage or assess the nature of an emergency.

Neighborliness shall constitute a very important provision of this agreement. Neither Michael nor Don shall make any loud, excessive, or undue noise at any time; nor shall either create any other such nuisance including those relating to smell, or sound, unless it is by agreement with the other party in advance. Both parties shall try to operate in this provision under good will; if restraint is not satisfactory after 3 years, specific written provisions shall be added.

7. ARBITRATION: Settling Disagreements

A) In the event of a disagreement both parties shall present their cases to an arbitrator. The arbitrator shall be the party or parties listed in attachment.

B) When an arbitrator is replaced, the outgoing arbitrator can be used to decide on a suitable new arbitrator; if one should die, the American Arbitration Society can be used, (and the rules used will be those of the S.F. American Arbitration Society or its successor). Each year $25 shall be available from rent to pay for arbitration (not cumulative), once this is used up, the next two issues of arbitration shall be paid for equally by both parties; in any subsequent arbitration issues occuring in any one year the arbitrator shall determine who pays the cost of arbitration.

8. TAX LAW CHANGES

Any changes in the federal, state, or local tax structure that have direct implications for the cost of owning or maintaining this living space shall be considered under section 3.(C) in calculating costs.

9. NON-TRANSFERABLE

This agreement is not transferable to any other party except by the agreement of both parties in writing. (This paragraph prohibits subleasing.)

10. INSURANCE AND SECURITY

Neither party shall be responsible for the insurance protection of the other party. Both parties shall act to provide personal and property security for the other party insofar as is reasonable, including the installation of security equipment (costs to be covered under Section 5).

11. MAINTENANCE

The living space shall be maintained at all times by Michael in the condition in which the space was rented and shall meet all code requirements in force at the time of the agreement.

12. Miscellaneous Provisions

A) In the event of property destruction such as fire or earthquake where damage exceeds 20% of the value of the house, Michael shall decide whether to rebuild the house.

B) Neither party shall violate zoning provisions or other ordinances regulating the property except by mutual agreement.

C) In the event of bankruptcy of either party the termination provisions of Section 4 can be invoked by the non-bankrupt party.

NOTES FOR THINGS TO DO IN THE FUTURE

(Excerpts from . . . My Portfolio to Become the United Nations' Artist-in-Residence)

by DONALD BURGY

Design a system which processes light laughter and dinner conversation through the evolving structure of a monitored weather front so that the output, which will be eaten as a sweet dessert, simultaneously corresponds in its organic properties to the weather structure as it occurs overhead. A "cookbook" of favorite natural phenomena interface recordings may be played back for the dinner itself.

Perform a series of events starting with the most inevitable, continuing with increasing improbability, and culminating with the involuntary and impossible.

Entrance examination for membership in the first starship: Who was the most important individual of our species? Predict the last human invention. Design the Earth's flag, anthem, and greeting.

Proteus Project: An encyclopedia of all possible forms in evolution. This cross-references with the legend to all reality maps.

Perform a meaning-free act.

Donald Burgy comes from a background in sculpture, but like many other sculptors, stopped making objects in the late 1960s. He was looking for a new art-form, one less dependent on the specific qualities of appearance, placement, size, and material, one more abstract, dynamic, and universal. What he arrived at is very close to the aphorism or the provocative suggestion.

Burgy once said that he wanted to penetrate the future so forcefully that he would create a temporal shock-wave, and light reflected from his body would be blue-shifted right off the end of the visible spectrum. I've never seen him do that, but I do recall one conversation that was so electrifying, tears of amazement literally leaped out of my eyes. Burgy is currently head of the Media Division of the Massachusetts College of Art in Boston, and this text is partly based on a video tape produced last year at the WGBH New Television Workshop.

—Robert Horvitz

Design a children's playground whose structure-process and value-form materials are the result of the total style orientation derived and reduced from the arts of confident and happy peoples from all times and places in history. The structuring of the children's imagination, confidence, and spontaneity will occur as they grow and play in the recreation area.

New Money: A new unit/system of reciprocal altruism.

Prime Object Generator (a prime object is that thing which originates a subsequent series or a new set, such as the first tool). The prime object generator makes only primes.

Suspend all State laws for a one-day State of Nature.

My portrait drawn by clairvoyants.

Video catalogue of all gestures and facial expressions from all cultures on Earth and their meanings in context. Video catalogue of sexual arousal displays of all species and their accompanying social hierarchy dominance displays. (These catalogues are part of the library of all behavioral repertoires.)

Tour of the human brain as a map of our past evolutionary environments.

Process selected myths and stories through a system which reorganizes the story's linear development according to various models of organizational transformation: a snowflake's growth pattern, the evolution of street patterns in cities, the psychological evolution of belief-systems, etc. The output will be verbal.

Gifts for my mother and father on the occasion of their deaths.

The Calendar Garden's form maps the process of floral evolution from a single entrance of fossils of the first plants, which no longer exist; down the path to ecologies of the oldest and simplest floral forms now growing, with their soils and insect types; to diverging paths through flowers, insects and soils of increasing variety and complexity; on to the present man-made floral clones.

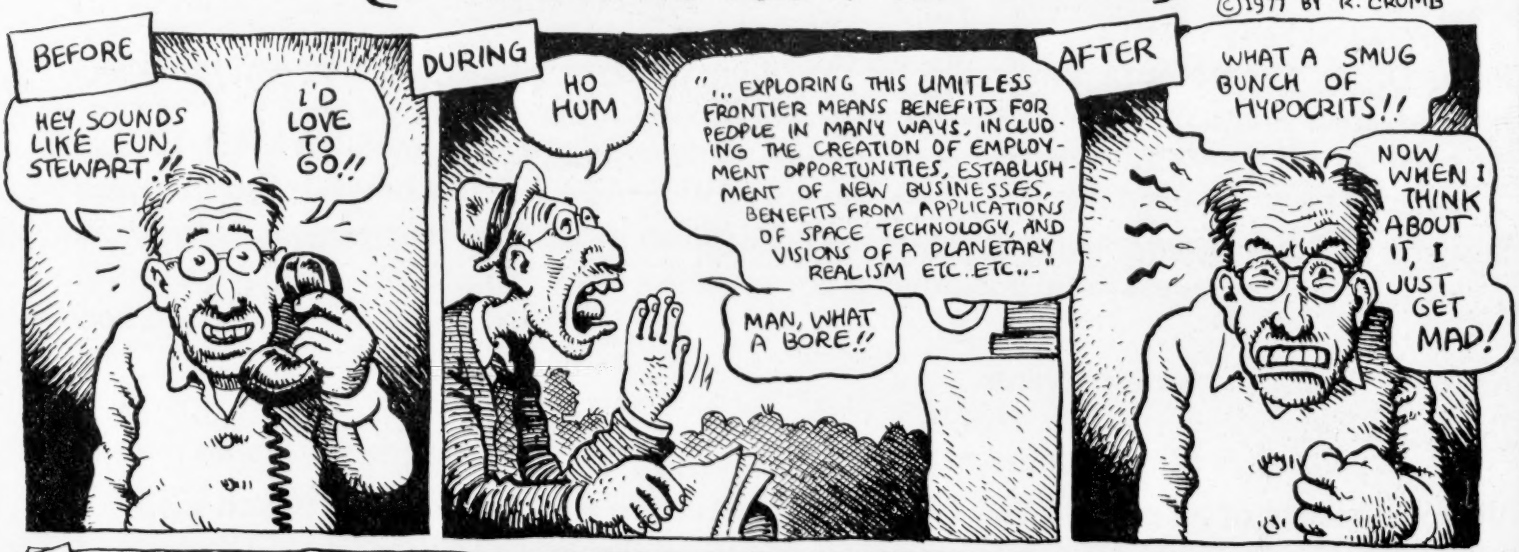
Build a Geneticord, a playable, portable DNA keyboard instrument capable of playing the set of all organic sets. One could sit down at the keyboard and play a rose . . . ▪

R. CRUMB ON ASSIGNMENT FOR THE COEVOLUTION QUARTERLY GOES TO THE...

SPACE DAY SYMPOSIUM

(OR WHAT EVER THE HELL IT WAS CALLED...)

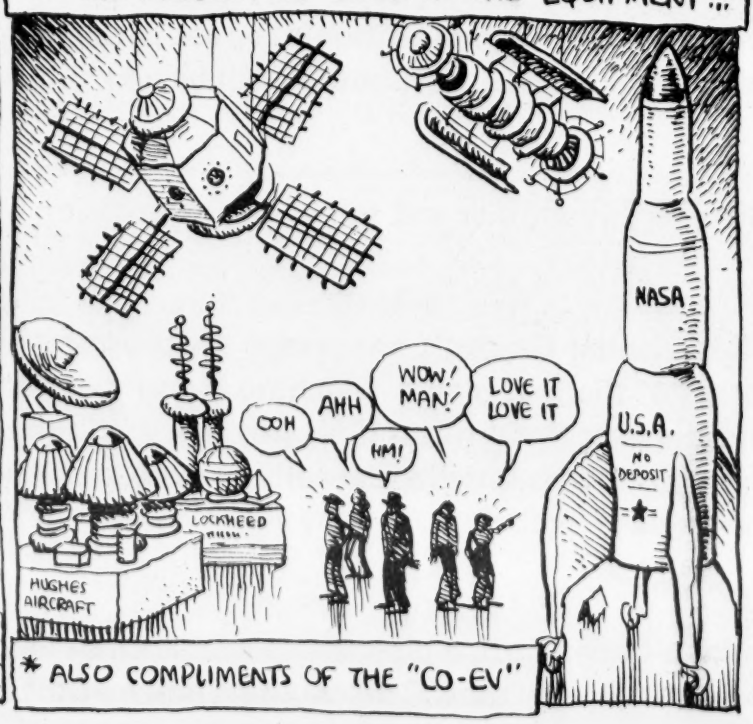
©1977 BY R. CRUMB



THE SPACE DAY SYMPOSIUM WAS HELD ON AUGUST 11TH, 1977 AT THE CALIFORNIA MUSEUM OF SCIENCE AND INDUSTRY IN LOS ANGELES. IT WAS NOT OPEN TO THE PUBLIC. FILMS WERE SHOWN, SPEECHES WERE MADE AND LECTURES GIVEN BY POLITICIANS, SCIENTISTS, ASTRONAUTS, PROMOTERS AND BIG SHOTS FROM THE AERO-SPACE INDUSTRY. THE CLIMAX OF THE EVENT TOOK PLACE THE NEXT MORNING OUT IN THE MOJAVE DESERT, WHERE THE NEW "SPACE SHUTTLE" MADE ITS FIRST FREE FLIGHT LANDING. THIS EVENT WAS OPEN TO THE PUBLIC AND WAS ATTENDED BY A LARGE CROWD MADE UP MOSTLY OF WORKERS IN THE AERO-SPACE INDUSTRY....

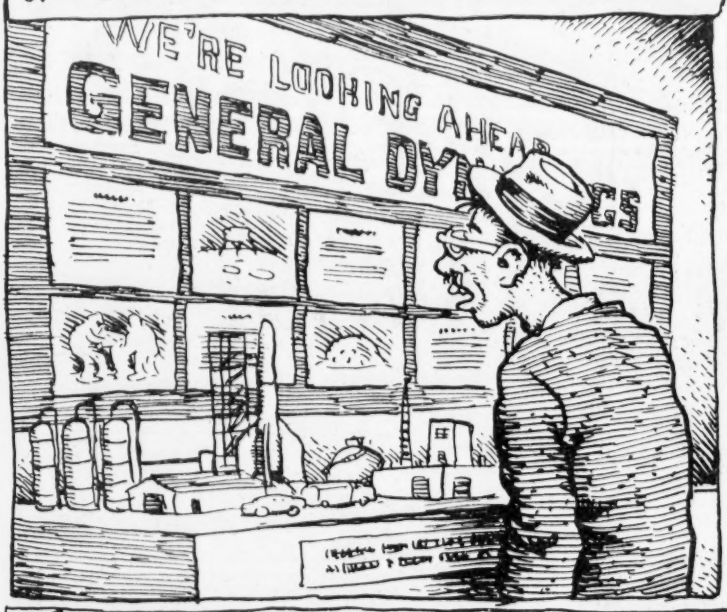
I FLY DOWN TO L.A. ON A BIG JET AIRLINER THE DAY BEFORE, COMPLIMENTS OF THE "CO-EV"...

I ADMIT I'M PREJUDICED... AFTER CHECKING INTO THE "HILTON"*, ME AND SOME OTHER "HIP" MEDIA TYPES FROM SAN FRANCISCO WALK OVER TO THE MUSEUM TO LOOK AT THE "EQUIPMENT"...

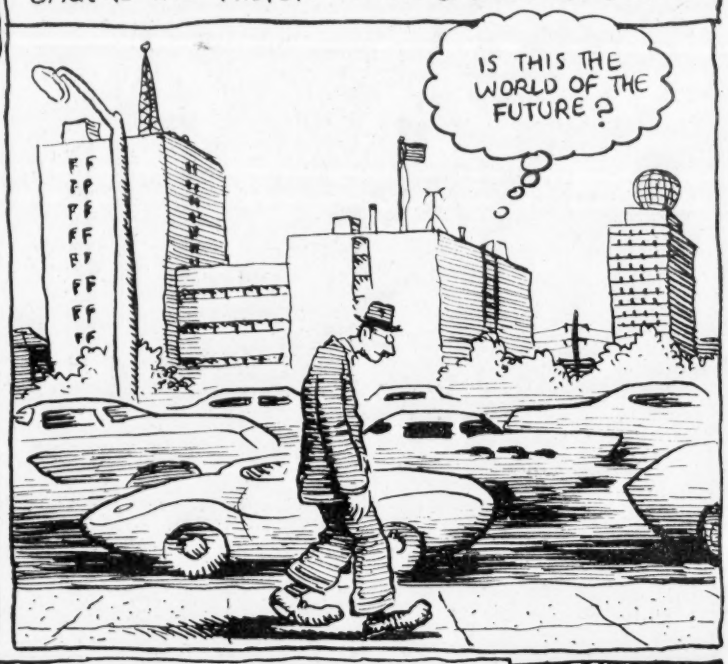


* ALSO COMPLIMENTS OF THE "CO-EV"

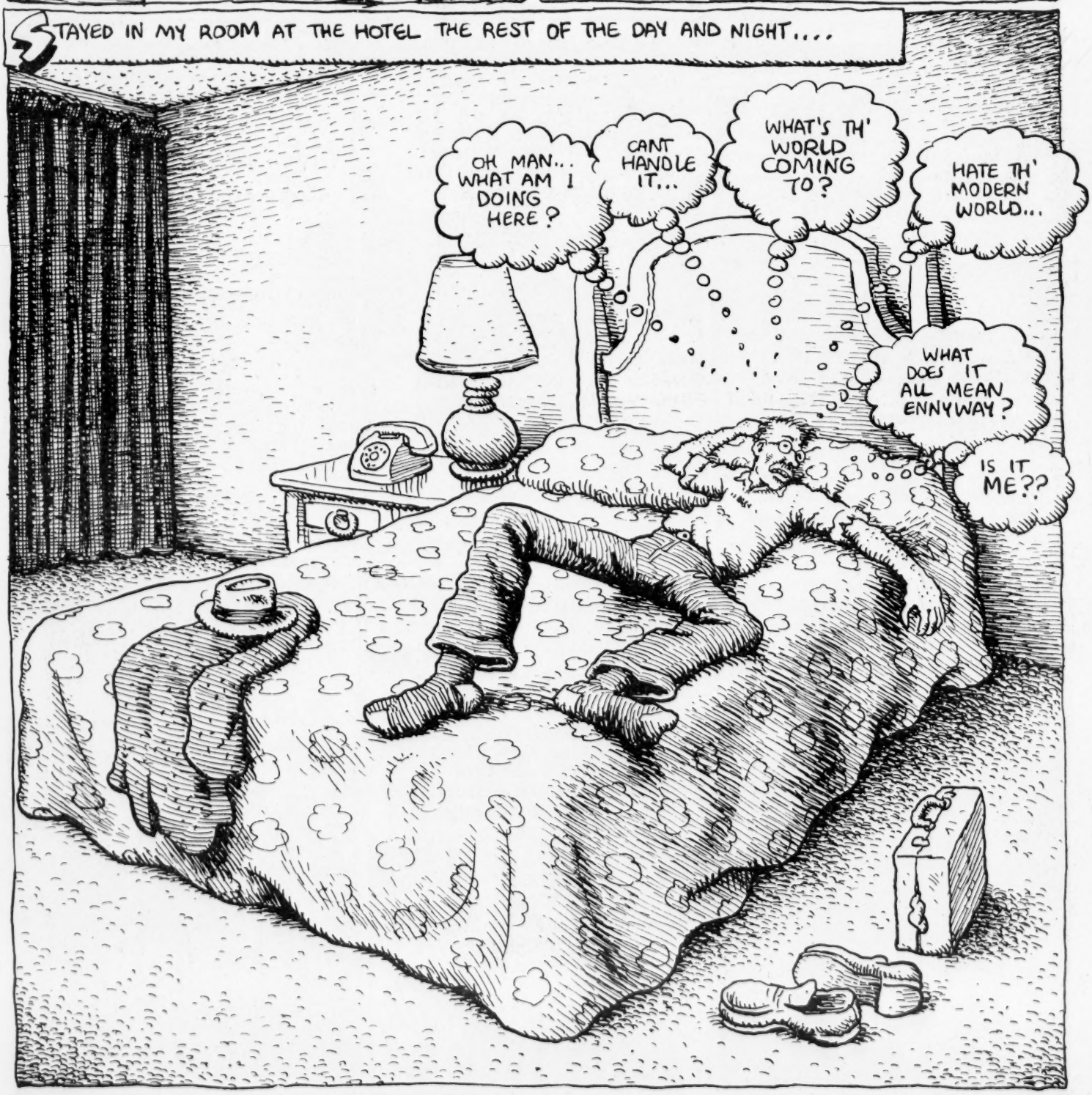
RIGHT AWAY I NOTICED EVERYTHING HAD A BRAND NAME ON IT... THE "MUSEUM" WAS A SHOW-ROOM FOR AERO-SPACE CORPORATIONS, EACH WITH ITS OWN ELABORATE DISPLAYS AND SALES PITCH...



THE SPACE GADGETRY LEFT ME COLD...I WALKED BACK TO THE HILTON ALONE & LOST IN L.A....



STAYED IN MY ROOM AT THE HOTEL THE REST OF THE DAY AND NIGHT....



NEXT MORNING AT THE SYMPOSIUM THE SPEECHES STARTED BRIGHT AND EARLY... FIRST CAME THE GOVERNOR OF CALIFORNIA TO START THINGS OFF..

...BUT WITHIN THIS "ERA OF LIMITS" WHICH I HAVE SO OFTEN EMPHASIZED, THERE IS AN INFINITE "ERA OF POSSIBILITIES" IN THE EVERLASTING FRONTIER OF THE UNIVERSE ITSELF... NOT TO MENTION THE PRACTICAL ECONOMIC BENEFITS...

THEN CAME SOME BIG WHEEL FROM NASA (NATIONAL AERONAUTICS AND SPACE ADMINISTRATION)

...THIS GREAT HUMAN ADVENTURE INTO SPACE IS A SUBJECT OF TREMENDOUS APPLICABILITY.....COINCIDES WITH THE DEVELOPMENT OF ENVIRONMENTAL IMPORTANCES AND THE "WHOLE EARTH" PROBLEM.....WHAT WORRIES ME IS ALL THIS TALK I HEAR ABOUT THE "QUEST FOR IMMEDIATE RELEVANCE"....

...GOOD INVESTMENT....

CULTURAL IMPERATIVE... SMALL PERCENT OF THE NATIONAL BUDGET...

GRUNT FIDGET

YAWN SHUFFLE

NEXT CAME A PROMINENT SPACE SCIENTIST AND AUTHOR....

....BUILT INTO THE HUMAN SPIRIT IS THIS ZZEST FOR FINDING OUT... IT IS THIS ZZEST WHICH HAS BROUGHT US TO OUR TOTAL DOMINANCE OVER THE PLANET.....

....LIMITLESS OPPORTUNITIES FOR VIGOROUS INTELLECTUAL DISSATISFIED PEOPLE.....SAFETY VALVE FOR GLOBAL PROBLEMS...

...SOCIAL SIGNIFICANCE....

...ATTAINING OF PERSPECTIVE...

THEN CAME THE CORPORATION DIRECTORS AND PRESIDENTS, AND THE DAY REALLY GOT TEDIOUS...

THE SPACE SHUTTLE WILL USHER IN A NEW ERA IN SPACE FLIGHT...BRAND NEW CAPABILITIES... ECONOMIC BENEFITS... PROFITS... LESS THAN ONE PERCENT OF THE NATIONAL BUDGET... PROFITS.... PROFITS.... ...PROFITS...PROFITS...

TECHNOLOGY IS NEUTRAL... IT'S HOW IT IS USED BY HUMANS THAT'S GOOD OR BAD... .... THE SOLUTION TO THE PROBLEMS OF THE ENVIRONMENT AND ENERGY IS NOT CONSERVATION BUT NEW TECHNOLOGICAL ADVANCES...

...THE DANGERS OF THE MISUSE OF ROCKETS AND SATELLITES IS THE RESPONSIBILITY OF THE GOVERNMENT, NOT THE AERO-SPACE INDUSTRY... ...OUR JOB IS TO DELIVER THE GOODS FOR WHOEVER BUYS OUR PRODUCTS... OUR RESPONSIBILITY IS TO OUR STOCKHOLDERS....

YAY! YA-A-Y! YEAH! HUZZAH! HOORAH

WE WANT TO BE THE LEADERS IN THE NEW ERA OF DECENTRALIZATION... OUR COMSATS* WILL PROVIDE INSTANT COMMUNICATION AND INFORMATION TO THE LOCAL COMMUNITIES AND NEIGHBORHOODS... ....HELP THE PEOPLE IN THE GHETTOS... IMPROVE THE QUALITY OF LIFE FOR EVERYONE... PROVIDE JOBS...

*COMMUNICATIONS SATELLITES...

ONE OF THE ASTRONAUTS TALKED ABOUT HIS EXPERIENCE "OUT THERE"....

....LOOKING BACK AT THE EARTH FROM SPACE, I HAD ALOT OF REALIZATIONS... IT GAVE ME A NEW CONSCIOUSNESS OF THE INSIGNIFICANCE OF OUR NATIONAL DIFFERENCES...EARTH IS INDEED A "SPACE-SHIP" WITH LIMITED RESOURCES...

"RUSTY" WAS A HELL OF A SINCERE GUY, A REALLY NICE GUY, BUT I'D HAD IT... THE HOURS OF TALK HAD LULLED ME INTO A STUPOR...

AGHH... ...SHIT...

BLAH BLAH BLAH

FINALLY IT WAS OVER... I STAGGERED OUT THE DOOR, MY MIND REELING FROM THE EIGHT HOURS OF LIES, DOUBLE-TALK, PURSUASION AND DOWNRIGHT MADNESS I HAD JUST SAT THROUGH...

OH MAN!

I SLUMPED DOWN ON THE STEPS OF THE MUSEUM, DEPRESSED BEYOND WORDS... WHAT WAS THE PURPOSE OF ALL THIS TALK ABOUT OUR "DESTINY"... THE "THRUST INTO SPACE"?

...TO DRUM UP BUSINESS FOR THE AERO-SPACE CORPORATIONS, OBVIOUSLY!!

..I THINK IT'S TERRIBLY EXCITING...

...DECIDED NOT TO STICK AROUND FOR THE BIG SPACE SHUTTLE LANDING...I WAS FED UP WITH THE WHOLE SHMEER... ...FLEW BACK TO SAN FRANCISCO THAT VERY NIGHT, UTTERLY DIZGUSTED BY THE FARCE I HAD WITNESSED....

PHOOEY!

OLD STICK-IN-THE-MUD CRUMB

BUT WHAT'S WRONG WITH SPACE EXPLORATION, YOU MAY ASK? ISN'T IT TRUE THAT IT'S AN EXCITING NEW FRONTIER, AND THAT IT WILL RAISE THE CONSCIOUSNESS OF HUMANITY??

DON'T BE DUPED BY FOOLISH BUCK ROGERS DREAMS OF GLORIOUS ADVENTURES AMONG THE PLANETS!!

LET'S WAIT UNTIL WE'VE LEARNED TO GET ALONG WITH EACH OTHER ON EARTH BEFORE WE GO BARGING INTO THE COSMOS! WHATAYA SAY??

AS FOR FRONTIERS, WE'VE STILL GOT PLENTY OF FRONTIERS LEFT RIGHT HERE IN THE U.S.A.!! HOW 'BOUT NEW YORK? CHICAGO? CLEVELAND? L.A., FOR CHRISSAKE! THESE ARE VAST AREAS IN NEED OF "VIGOROUS INTELLECTUAL" EXPLORATION!!

...BUT IT'S JUST MORE OF THE SAME OLD HYPE...TO KEEP THE "ECONOMY" GOING...NOT UNLIKE THE "ATOMS FOR PEACE" SHUCK AND EQUALLY AS DANGEROUS! YES, THE SPACE HYPE IS... **DANGEROUS!** ....LET'S FACE IT, THE MILITARY **WILL** USE SPACE TECHNOLOGY TO CREATE A WHOLE NEW ARRAY OF WAR TOYS IN SPACE AT LEAST AS HORRIFYING AS ANYTHING THEY'VE ALREADY GOT, IF NOT MORE SO... BUT WHY AM I RAVING AGAINST IT? WHY BOTHER? THE ONLY THING THAT WILL STOP THEM IS A DRASTIC BREAKDOWN IN OUR INDUSTRIAL SYSTEM...NO MORAL OR INTELLECTUAL ARGUEMENT HAS EVER STOPPED THEM IN THE PAST.....

THE SADDEST PART THOUGH... THE SADDEST PART.... IS THAT ALOT OF OTHERWISE INTELLIGENT PEOPLE ARE FALLING FOR THE SPACE HYPE... HOOK, LINE AND SINKER!!

...BUT AS FOR ME, I WASH MY HANDS OF IT!!

END

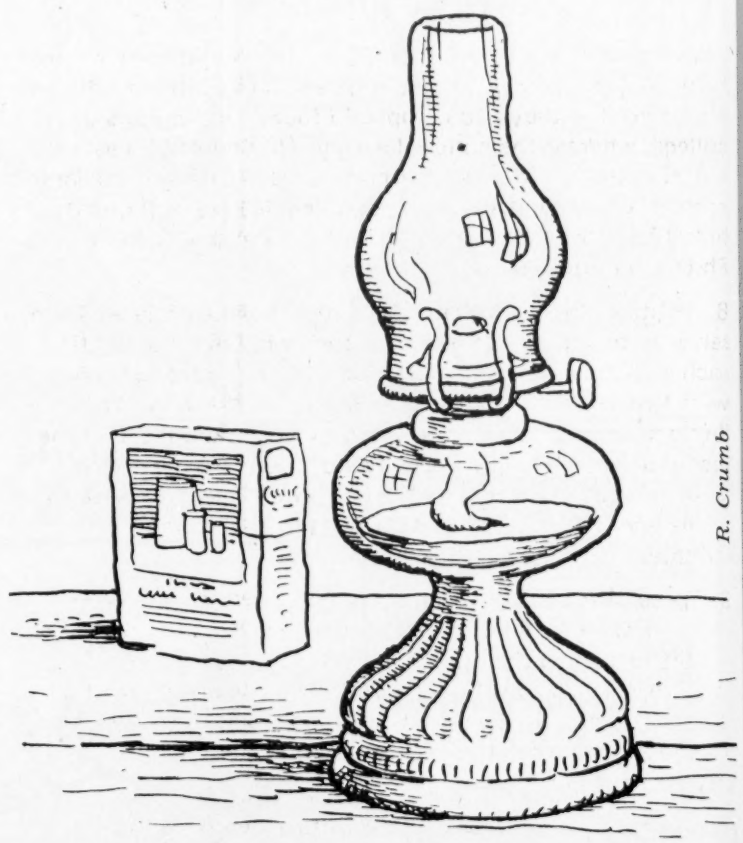
VOLUNTARY SIMPLICITY

Follow-up and Comment

In the last issue (Summer '77 CQ) four articles held forth about Voluntary Simplicity, which two authors from Stanford Research Institute claim is a growing American phenomenon of great cultural and economic significance. In the article was a questionnaire inviting response from the CQ readership.

Here's a preliminary tabulation of the questionnaire, followed by remarks by E.F. Schumacher, Murray Bookchin, Ed Abbey, Scott Burns, Sherry Thomas, Michael Phillips, and other CQ readers.

—SB



R. Crumb

Response to the Voluntary Simplicity Questionnaire

Dear Stewart:

In the last issue of CQ we promised to share with the readers feedback we received from the questionnaire included in our article on Voluntary Simplicity. In the past four weeks we have received over two hundred responses from people in 41 states and several Canadian provinces. (The wide geographic distribution of responses indicates that this is a way of life that is not confined to some fringe in California but rather has taken root in many places).

The results presented below are drawn from a sampling of 114 of the more than 200 letters received. Since the letters are still arriving in a rather steady stream, these results must still be considered preliminary although the general trends are now becoming fairly self-evident. Many who responded included very thoughtful letters that have added greatly to our understanding of the practical expression of this way of life. Since we cannot respond to each person individually, we would like to express here our gratitude for their taking the time to respond so carefully and thoroughly — each letter is being read and re-read as we attempt to discern what is happening.

A note of caution concerning the interpretation of these data. These findings concerning voluntary simplicity are drawn from the readership of CQ. CQ, being a rather cerebral and sophisticated publication (despite its funkiness), yields a sample biased toward higher levels of education. Given the strong correlation between education and income, this survey probably significantly over-represents people with these characteristics — even among the population adopting a life-style of voluntary simplicity. In other words, this sample cannot be considered to be representative of either the general population or of those adopting voluntary simplicity. It is useful information as long as its limitations are recognized.

KEY SURVEY FINDINGS

1. Extent: In our sampling of responses, about 38% identified themselves as living a life of "full" voluntary simplicity, 58% as "partial" VS, and 4% as "sympathetic" to VS. To date we have received no responses from persons who have said they were indifferent, unaware, or opposed to this way of life. These results indicate that this sample is heavily biased toward a population that is actively engaged in Voluntary Simplicity as a way of life and should not be considered as a reflection of the attitudes and characteristics of the general public.

2. Age: VS people are considerably younger than the national average (which is a bit under 30). About 55% were aged 30 or less, and 45% over 30 — (This despite the fact that no respondent was under the age of 18.)

3. Sex: Somewhat more males than females responded — approximately 60% males and 40% females. We are not sure what this means — socially or statistically.

4. Marital Status: About 38% of respondents were married, 43% single, and 19% "living together." Relative to national averages, the sample is rather strongly skewed away from marriage.

5. Race: To date, every respondent has been white. This powerful finding tends to correlate with results (reported below) on family incomes when young and with levels of education. Those who have not had the opportunity to experience a life of relative affluence and who are less well educated seem strongly predisposed away from voluntary simplicity since their life experience has often been that of involuntary simplicity.

6. Income: Income levels of respondents are difficult to compare with national averages because of classification problems. Most responses were specified to be individual income, but some apparently also include the spouse's or partner's income. In terms of family income, respondents are disproportionately represented at the low end of the income spectrum. In terms of "unrelated white individuals" (i.e., singles or nonhousehold heads), respondents are over-represented at the high end of the income spectrum (see table).

7. Education: The respondents are highly educated — which may suggest a strong correlation between voluntary simplicity and level of education (or the fact that the sample is

	VS Survey (Largely Individuals)	1975 Families	1975 Unrelated White Individuals
$ 3,000	21%	4.5%	26.5%
$ 3,000-$ 5,000	14%	7.5%	22.0%
$ 5,000-$ 8,000	21%	14.5%	21.5%
$ 8,000-$12,000	13%	17.5%	14.5%
$12,000-$16,000	14%	17.0%	8.0%
$16,000-$25,000	4%	25.0%	7.5%
$25,000	13%	14.0%	7.5%

drawn from the readership of CQ, which would tend toward being well-educated). Approximately 70% of the respondents indicated that they had completed four or more years of college, whereas the national average (of people 25 years or older) is about 13%. What is particularly striking is the large number of respondents with advanced degrees — about 16% hold Master's degrees or equivalents and over 10% hold Ph.D.'s, or equivalents.

8. Politics: Well over half of the respondents declared themselves to be independent voters; somewhat more than 20% each said they were Democrats or "other." Among "others" were libertarians, decentralists, Peace and Freedom, "eclectic," "innocent bystanders," and "don't vote." About 2% of the respondents identified themselves as Republicans. These findings suggest there is considerable movement away from traditional political orientations by those adopting voluntary simplicity.

9. Place of Residence: Respondents turned out to live in more rural and small town environments than we expected — 35% identified themselves as living in a "rural" area, 11% in a "rural small town" under 10,000 population, about 23% indicated they live in a suburban town (under 100,000), 13% in a small city (100,000 to 500,000), and 17% in a big city of over 500,000 people.

10. Family Income: One of the more interesting findings is that adherents to voluntary simplicity seem almost invariably to come from families who had middle to high incomes during their childhood and adolescent years. About 75% rated their family incomes during these years as "middle," almost 25% as "high" (equivalent to $25,000 or more in today's dollars), and less than 5% as "low."

11. Inner Growth: Regarding the practice of one or more inner growth processes (traditional religion, meditation, psychotherapy, human potential, and other), approximately half of the respondents said they were involved with some form of meditation, about a third said they were involved with some "other" form of inner growth process (ranging from biofeedback and hypnosis to "mind-expanding" drugs), about one quarter indicated they were involved in some form of human potential activity (e.g., gestalt therapy), approximately 15% indicated an involvement in traditional religions, and somewhat less than 10% each said they were engaged in psychotherapy or none of the above. The striking finding from these data is the extent to which inner growth processes seem to be correlated with this change in way of life.

12. Support: Approximately half of the respondents indicated that they received "some" support for their inner growth processes and approximately 22% each indicated that they were "tolerated" or received "a great deal of support" from friends and community. However, on reading the letters, a more accurate assessment seems that most people feel tolerated by the larger community and supported by a much smaller group of a few friends in their inner growth process.

Thanks for the opportunity to dialogue with the readership of CQ. Perhaps a more comprehensive review of results could be published in a subsequent issue of CQ.

With warm regards,

Duane Elgin and Arnold Mitchell

Shame

Dear Stewart Brand, Richard Raymond, Duane Elgin, Arnold Mitchal, et al.,

You have goosed my paranoia to a new level.

A questionnaire on Voluntary Simplicity to fuel SRI's Business Intelligence Program? It's a little like asking plants to develop their own herbicide.

The point of Voluntary Simplicity is to reduce (or eliminate) one's dependence on business and government. The idea of "moving business and government to serve your needs better" becomes oxymoronic. Serve what needs?

Whose needs are being served by the questionnaire you published? The person persuing a simple lifestyle or the commercial interests who would wish to exploit him? Such a questionnaire is only a tool by which corporate business will attempt to penetrate the lives of people who practice VS (ugh, like: contract VD) and to popularize it enough that people who don't will adopt some of its surface trappings -- and buy something along the way (cf., the photo-ad on p. 33). Seems to me the people the article purports to describe are the kind who would make a conscious effort to take their "needs" only to businesses that don't use and can't afford SRI.

Some folks might get a tingle in their egos at the prospect of filling out the questionnaire, thereby somehow to rub statistical shoulders with Thomas Merton or maybe to show up weeks later as phenomenon of the week-month-year in the pages of Time. But aside from the sugar candy, why would any self-reliant, independent-minded person want to describe himself in the manner and for the purposes you offer? Shame on the CQ. . . .

Keep some faith,

Bill de Buys
Chamisal, New Mexico

Pride

. . . Between the article on voluntary simplicity and "Death Does Not Exist," i was overwhelmed. Am in the process of making changes, and the article on VS was just what i needed to reinforce what i was feeling. The uplift received from reading that issue, knowing many others out there feel the same as i do was exactly what was needed. To my mind, the whole issue was the best in a long time. . . .

Love,

Bob Stolzman
Morristown, NJ

Voluntary Subjugation

VOLUNTARY SIMPLICITY. Watch it. This can turn into one more move toward the re-subjugation of women. The picture sketched in by your writers (and by my friends) looks like total drudgery for ma, though none of these folks seems to have even noticed it. He has his pickup and his chain saw; she has her pump, her washboard, and her broom. She has laid on her, for example, these righteous natural fibers (that actually take more energy to produce if you count fabric life, and energy expended in laundering — whether hers or not). She lives a la 1880, he a la 1940. That good ol simple life did not include plumbing, central heating, or electricity for the home maker, but it sure did on the job. Industry, commerce, and agriculture got all these goodies as they became available. "Men's" work is done by animals, water, steam, gasoline engines or whatever while women's is done by women in the scenario you're projecting. This is a double standard — of living. . . .

Happy trails,

Jo Lowery
Minnetonka, Minnesota

Ilka Hartmann

E. F. SCHUMACHER

Economist, author of Small is Beautiful *and* Guide for the Perplexed *(Just out from Harper & Row, see p. 71)*

A Culture of Poverty

The modern assumption that for the "good life" you have to be rich springs from a crudely materialistic philosophy that contradicts the universal tradition of mankind.

A culture of poverty, such as mankind has known in innumerable variants before the industrial age, is based on one fundamental distinction – which may have been made consciously or instinctively, it does not matter – the distinction between the "ephemeral" and the "eternal." All religions, of course, deal with this distinction, suggesting that the ephemeral is relatively unreal and only the eternal is real. On the material plane we deal with goods and services, and the same distinction applies: all goods and services can be arranged, as it were, on a scale that extends from the ephemeral to the eternal. Needless to say, neither of these terms can be taken in an absolute sense (because there is nothing absolute on the material plane), although there may well be something absolute in the maker's intention: He may see his product as something to be used up, that is to say, to be destroyed in the act of consumption, or as something to be used and enjoyed as a permanent asset, ideally for ever.

The extremes are easily recognised. An article of consumption, like a loaf of bread, is intended to be used up; while a work of art, like the Mona Lisa, is intended to be there for ever. Entertainment is intended to be ephemeral; education (in the full sense) is intended to be "eternal."

Ephemeral goods are – to use the language of business – "depreciating assets" and have to be written off. Eternal goods, on the other hand, are never "depreciated" but "maintained." (You don't depreciate the Taj Mahal; you try to maintain its splendor for all time.)

Ephemeral goods are subject to the economic calculus. Their only value lies in being used up, and it is necessary to ensure that their cost of production does not exceed the benefit derived from destroying them. But eternal goods are not for destruction; there is no occasion for an economic calculus, because the benefit – the product of annual value and time – is infinite and therefore incalculable.

Once we recognise the validity of the distinction between ephemeral and eternal, we are able, in principle, to distinguish between two types of "standard of living." Two societies may have the same volume of production and the same income per head; but the quality of life or life-style may show fundamental and incomparable differences: the one placing its main emphasis on ephemeral satisfactions, and the other devoting itself primarily to the creation of eternal assets.

In the former, there may be opulent living in terms of ephemeral goods and starvation in terms of eternal goods – eating and drinking and wallowing in entertainment: in sordid, ugly, mean, and unhealthy surroundings; this implies a "high metabolic rate," a heavy impact on the environment and a rapacious use of resources.

While in the latter there may be frugal living in terms of ephemeral goods and opulence in terms of eternal goods – in other words: modest, simple, and healthy consumption in a noble setting; which implies a "low meatbolic rate," a gentle impact on the environment, and a considerate use of resources.

In terms of conventional economic accounting, both these "types" are equally rich, equally developed – which merely goes to show that the purely quantitative approach misses the point.

Frugal living in terms of ephemeral goods means a dogged adherence to simplicity, a conscious avoidance of any unnecessary elaborations, and a magnanimous rejection of luxury – on the ephemeral side. This makes it possible to enjoy a high standard of living on the eternal side, as compensation and reward. Luxury and refinement have their proper place and function, but only with eternal, not with ephemeral, goods. (Don't get Michelangelo to sculpture your butter before you spread it.) This is the essence of a culture of poverty.

MICHAEL PHILLIPS

Co-founder of Briarpatch Network, author of The Seven Laws of Money

Each of us is the final consumer. For our barbeque dinner mountains are moved! Mountains are moved to form dams for power; power that melts bauxite into aluminum which is used in trailer trucks that haul grain to feed cattle. Still other trucks, using oil brought across the seas in tankers, carry the meat to steel reinforced concrete supermarkets for us to buy. Our barbeque dinner moves a giant wheel.

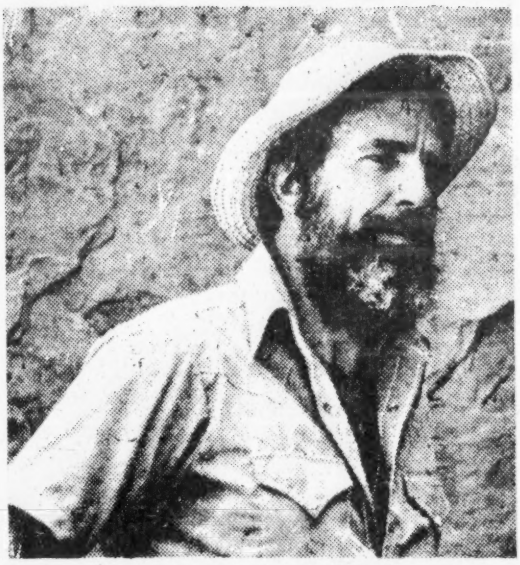
63 million American households are the final reason that enormous resources are continually consumed. The higher the household income the more resources used up.

ESTIMATED HOUSEHOLD USAGE OF RESOURCES

	Usage/Household at $10,000 annual income	Usage/Household at $20,000 annual income
Electricity	2,170 Kilowatts/mo.	4,025 Kilowatts
Petroleum	300 gallons/mo.	475 gallons
Timber	6 Trees/year	8 Trees
Water (Incl. irrigation)	3,300 gallons/day	4,000 gallons
Fertilizer	106 pounds/mo.	135 pounds
Crab	4.4 pounds/year	5.5 pounds
Shrimp	5.8 pounds/year	8.0 pounds
Outboard Motors	One for every Nine households	One for every Five households
Asbestos	4 pounds/year	8.5 pounds
Lead	18 pounds	33 pounds

Based on 1970 U.S. Census.

Calculations are based on 30 years of data from the U.S. Statistical Abstract. In a regression of Y = a + bX where Y is GNP in constant dollars and X is quantities of physical resources "b" is assumed to be the "income effect" for each resource. Each "b" is used as a multiplier in the table of $20,000 households shown above. Table by Michael Phillips, June, 1977.



EDWARD ABBEY

Malcontent, author of Desert Solitaire, The Monkey Wrench Gang, Black Sun, *and (newly)* The Journey Home.

What about involuntary simplicity? Ask my mother. She raised four children and one miscarriage (me) in an Appalachian farmhouse without electricity, without central heating, without any form of plumbing until about 1944, when Hitler and Tojo, God bless them, and the war, brought prosperity even to our neck of the backwoods.

One of my childhood chores was the drawing and carrying of water for the kitchen. In wintertime that meant heating a kettle of water – left over from the day before – on the wood-burning cookstove (I also hewed the wood), putting on hat, coat, gloves, and taking that kettle of boiling water out to the pump by the back door, pouring it slowly over the sheath of ice until I could work the pump handle, then thawing and priming the pump until the water began to flow, refilling the kettle and a couple of buckets, and lugging them all back into the warmth of the kitchen. It was a great day on the sub-marginal Abbey farm – which, incidentally, we kids called Old Lonesome Briar Patch – when my proud, improvident father finally accumulated enough surplus capital to buy and install a hand pump inside the kitchen. With a sink! And a drain! Ask my mother about involuntary simplicity.

Myself, I'm as reluctant as my mother to give up many of our hard-won technological toys. I love motorcycles, fast cars and fast women, Waylon Jennings and Gustav Mahler on the stereo, pistachio ice cream and high-powered rifles and rocket-powered spaceships. If only we as a people had brains enough to limit our population to some rational number – say about 50 million for the continental USA – we could continue to enjoy our extravagant life-style, our playthings and *angst*, and still have, in addition, left over, a wild free green wide-open and spacious America for the pleasure of our children and the survival of other more modest, probably more worthy, forms of life.

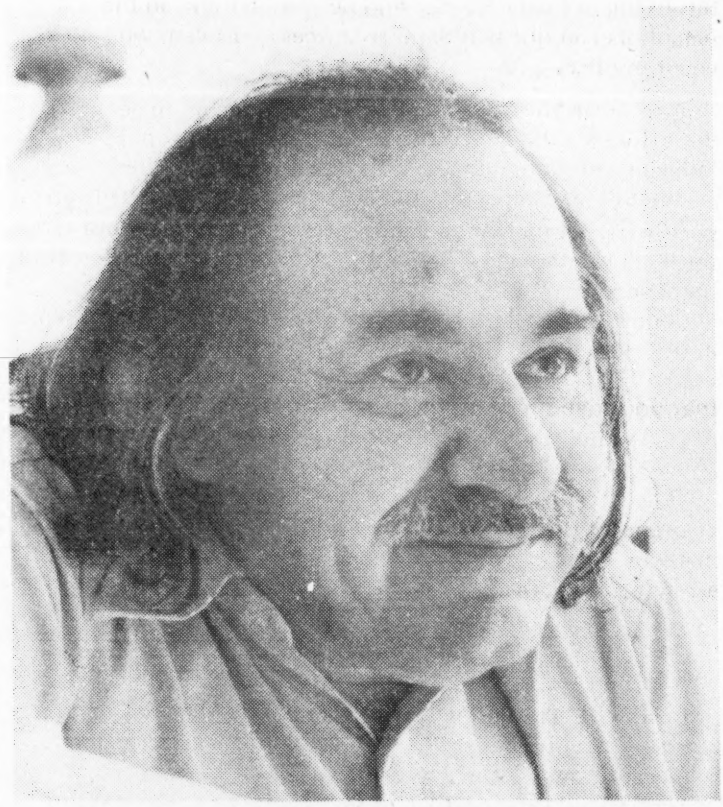
The tragedy of the human situation at present is that the combination of an ever-growing population and an ever-expanding industrialism – each trend stimulating and reinforcing the other – is driving humanity toward some kind of technocratic totalitarianism, under the hard rule of which the entire planet will be transmogrified, out of necessity, into a grim glum desperately-efficient food factory resembling a Chinese commune. Or the San Joaquin Valley. However . . . I am an optimist. I believe that sometime before this can happen good old Mother Nature will solve our problems for us in her traditional way, that is, through famine, plague, religion and war. We've been through it all many times before. We'll survive, sort of.

Meanwhile we owe it to our sense of honor and the principle of reason to make an effort, at least the pretense, toward averting either horn of the dilemma. Through something like "voluntary simplicity," if universally practiced, we might perhaps pass safely between the horns of tragedy into a plausible future. Not for ourselves; we don't deserve it; but for our children and their children, who do. The obvious way in which to make their lives possible is by stabilizing, somehow, both the economy and the population. This means giving up our toys, all the non-essential junk of plastic and aluminum and self-indulgent "services," and at the same time, and equally important, bringing to a halt the crazy, irresponsible breeding spree that makes our race the laughingstock, the lemmings, of the universe.

How? Well, certainly not by attempting to pack the human surplus into more aluminum garbage cans rattling around in the solar system; we can't build and launch such things fast enough to solve the problem in that way; even my eight-year-old daughter can see the comical absurdity of that notion; and not by the voluntary restraint of an enlightened minority; but through the one method that appeals to all of us, economic incentives. A rigorous tax on fertility; a liberal bonus for the sterile; a national and inter-national crash program against Motherhood. Hell, we tax everything else, why not the sperm and the womb?

Ah that Abbey, the reader thinks, he's putting us on again, reducing everything to a joke. All right, gentle reader, you're right, my proposal is offered mainly for laughs. We live in a world, brothers and sisters, where simple, elementary, common sense comes out – and on – like laughing gas. But that's okay by me too; as I said a few paragraphs ago, I am an optimist.

One final question. Do I practice what I preach? A fair question, which I resent. And my answer is No, of course not. Or only when I have to. Like most people, I am bored with pinto beans, poverty and obscurity. I want to be rich and famous like everybody else. Like Andy Warhol promised . . . that goddamned little tow-headed rednecked tri-sexual lying sonofabitch. You can't never trust them Appalachian hillbillys.



Brand

MURRAY BOOKCHIN

Political historian, professor of Urban Ecology at Ramapo College, New Jersey, Director of Institute for Social Ecology at Goddard College, Vermont, author of Post-Scarcity Anarchism; The Limits of the City; *and* The Spanish Anarchists.

There is so much I could have enthusiastically welcomed in "Voluntary Simplicity (3)" – decentralization, human scale, self-determination, ecological awareness, and an ethic of sharing, quality production, and personal growth – that it was with cold horror that I found these great libertarian ideals degraded by the cheap merchandising metaphors and views of the SRI authors. Perhaps I am naive, but I had thought that decentralization, human scale, self-determination and sharing (quite aside from ecological awareness and personal growth, whatever these words mean today) enjoyed a certain immunity from the multicorporate mind. After writing, lecturing, and fighting in behalf of these Anarchist precepts for more than a quarter-of-a-century, I had found them a refuge from the degradation of the ecology "movement" into a new "eco"-technocracy in which solar, wind, and methane gimmicks have become the mechanical substitutes for a new spiritual community based on mutual aid in human relations, libertarian communism in the sharing of ourselves and the planet, and the use of a liberatory (not a morally neutral "appropriate" and "intermediate") technology in mediating our relationship with the natural world.

The SRI report has subverted this refuge. It has revealed in my mind, at least, that even terms like "decentralization," "human scale," "self-determination" and "sharing" can be deftly manipulated – be it by corporate-oriented enterprises like the SRI, governmental monoliths like NASA, cold warriors like Herman Kahn, and political hucksters like Jerry Brown – to provide "the fastest growing consumer market of the coming decade;" "new styles of advertising and promotion," an ethically congenial home for "high technology and the profit motive" and a refreshing "personal and political posture" for Jerry Brown, not to speak of the "humanistic capitalists in the U.S."

What I find most sinister about the SRI report is that it assumes as given an entire body of social and moral concepts that are themselves questionable and lie at the very roots of the problems the report professes to resolve. Take the delicious notion of "humanistic capitalists," a notion that is rendered into a contradiction in terms by our diseased social system. I do not wish to disparage the many wealthy individuals who are certainly humane and actively charitable. But can a working capitalist today afford to be humane – does he or she even have a choice – in the "fastest growing consumer market of the coming decade?" To be humane, one must of necessity cease to live by the competitive, dog-eat-dog precept of "grow or die," in short by the dictates of the very market, advertising, and profit-motivated system which the SRI authors presuppose. For the SRI authors to leave this fundamental social dimension unexplored suggests that they are either fools or demagogues.

Such unexplored presuppositions belie the "humaneness" of the entire report and leave its moral integrity open to serious doubt. Indeed, far from charting a course away from competition, egotism, the profit-motive, the market, consumerism, and advertising, the SRI report reinstates these very sources of ecological breakdown, and social crises by adorning them with new adjectives, notably, "enlightened" self-interest and "cooperative" individualism. If the SRI report reveals anything, it is the brutal fact that no spiritual adjectives, no technology ("hard," "soft," or in-between), no ethical or political precept can stake out a claim to real moral integrity unless it is prepared to replace the present system of property, distribution, and political institutions by radically new libertarian and ecological ones. I had broken with socialist ideologies years ago because it was evident that the mere abolition of private property, profit, and the market did not necessarily lead to a decentralized, self-administered ecological society. By the same token, the SRI report has made it equally clear to me that a decentralized, self-administered ecological society will not be achieved without the abolition of private property, profit, and the market system. And unless we go beyond both the socialist and SRI versions of the "good life" – indeed, *unless a radical break with both versions is presented as a challenge to all the gurus, acolytes, propagandists, and technocrats who glut the waning "ecological" movement of the seventies* – that movement will become the shroud of our highest ideals, visions, and hopes for a truly ecological society.

The very words "Voluntary Simplicity" reveal in my mind the spurious nature of the report's claim to a visionary approach. In a communitarian society – decentralized, scaled to human dimensions, and guided by ecological precepts – simplicity will not be the "voluntary" practice of an elite, however small or large. It will be part of the very nature of things, as integral to human sensibility as feeling and as integral to human society as freedom. Perhaps the word "simplicity" will also disappear because we will not be "voluntary" consumers in that fastest "growing" of all markets – the "lifestyle" market itself. Rather, we will be liberated individuals not only in our enhanced capacity for personal growth but also liberated social beings who have been freed of our appetite for profit, self-interest, and the countless hard sells of our day that adorn themselves as spiritual messages.

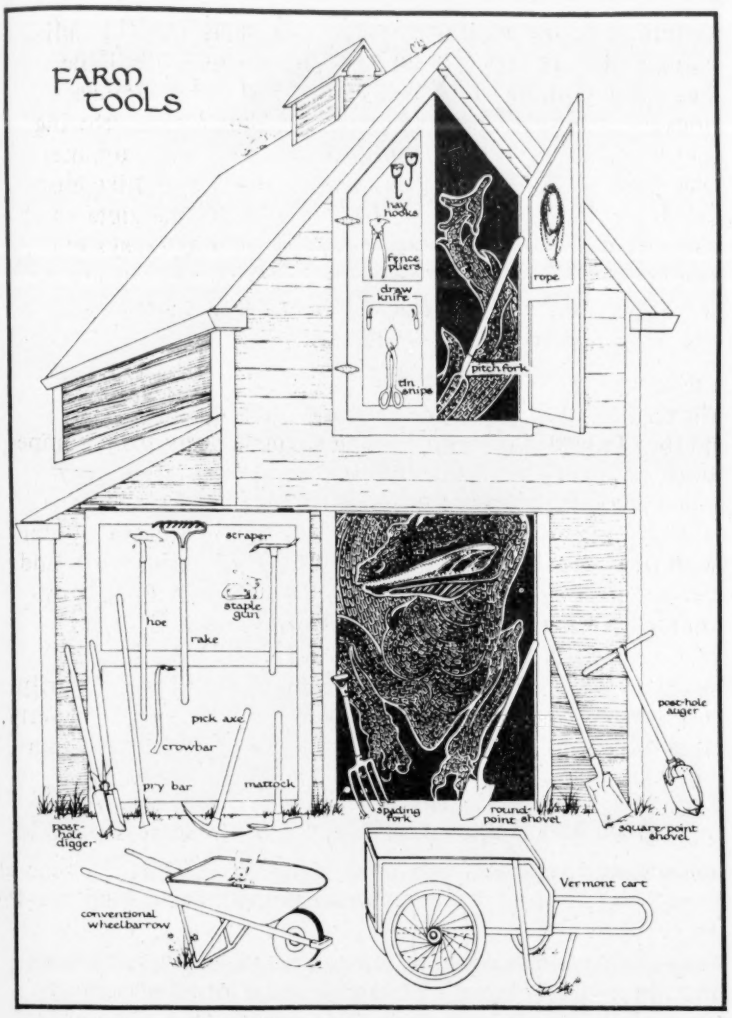
WILLIAM JAMES

Philosopher and psychologist, 1842 - 1910

"One hears of the mechanical equivalent of heat. What we now need to discover in the social realm is the moral equivalent of war: something heroic that will speak to man (and woman) as universally as war does, and yet will be as compatible with their spiritual selves as war has proved itself to be incompatible. I have often thought that in the old monkish poverty-worship, in spite of the pedantry which infested it, there might be something like that moral equivalent of war which we are seeking. May not voluntarily accepted poverty be "the strenuous life," without the need of crushing weaker peoples?"

The Varieties of Religious Experience, *1902*
Sent by Richard Raymond

from Country Women (Doubleday)



SHERRY THOMAS

Co-editor, Country Women *(magazine and book)*

I've wanted to respond, at least briefly, to some of the ideas in the SRI report. I was at first sight enthused, how fine to be reminded of the value systems which underly what has become an unconscious and even routine set of life choices. Even nicer, is to know that millions of other people share these values and this life and that we are having an impact on the culture as a whole. But by the end, I was having troubles, was rebelling at the, perhaps voluntary, simplicity of social scientists standing outside a culture and selling it to all the forces we struggle so to defeat. I don't have any idea whether there are 5 million or 50 thousand people living a "simple" life, what I do know from eight years of running a small farm is that it isn't very simple.

I'm most wanting to respond to what I feel is the ostrich perspective of the article — the whole ignoring of the above ground world of the American corporate capitalist culture which surrounds all of us all the time. In answer to Michael Phillips question, "Would you like to have a lot of money?" I have to say that I don't know anymore. Being voluntarily simple for many years has meant becoming more and more involuntarily simple every year. My taxes have quadrupled since I moved to the farm, and now amount to as much per month as many of my city friends pay in rent (this means a lifelong indebtedness to a government I abhor for the privilege of owning a family farm). Feed prices have risen enormously in those same years (hay alone has gone from $40/ton to $115/ton), while the market prices of my milk, eggs, vegetables, meat and wool have hardly risen at all. Even my ex-urban "hip" neighbors aren't willing to pay more for their locally grown organic food than they would have to pay at Safeway. To get even that price, a minimal retail price, means that the farmers must also be a retailer too. The homestead images of just breaking even, of never counting the cost of your labor, seem insanely foolish to me. It is no longer fun, after 8 years, to spend hours every day scrubbing old wine bottles and delivering milk, so the neighbors can drink at Safeway prices and I can, with luck, cover my feed bills.

I don't mean to sound bitter. What I'm trying to get to is basically two things: it is easy to romanticize both self-reliance and material simplicity. The reality of human scale and self-determination in the area where I live is that if you want a decent market for your farm produce, you have to organize the farmers market, struggle with a hostile "health" bureaucracy, retrain consumers to traditions their grandparents knew, and produce all the food you're going to sell in this market. Self-determination in electoral politics or your schools, means you're out 2 nights a week at meetings, that you spend months or even years working towards the next election hoping this time to defeat the monied interests. Self-determination means that you mobilize the whole community to attend the supervisor's meeting about zoning changes in your town only to find that the decision has been made in the back room by the logging companies, the real estate brokers and your elected representatives. Taxation policies, subsidies to agribusiness, monopoly control of feed and equipment companies, land speculation, ecological destruction by local corporations — these are not incidental, not something peripheral to our little "voluntarily simple" farms — they are part of a careful web to insure that the small and independent farmer won't survive. And, short of major social changes, many of us won't. You tell us that there's a lot of voluntarily simple people in cities too — that's good to know, for a lot of us farmers may be back there before long.

I also wanted to say something about material simplicity. It's great to glorify buying high quality long-term value tools as part of our new lifestyle, but the reality is that when the much-needed rototiller costs 1/6 of your yearly income, you just don't buy it. There isn't that much margin in the system, and what margin there is narrows every year. I produce most of my own food and a significant surplus for others, I drive a 20 year old truck, and live in an old house I repaired with scrap materials. Even so, with inflation touching everything from vet supplies to truck parts, and farm income remaining stable, what has been a rich and sustaining life has also become incredibly burdensome. I don't want to worry desperately about every toothache or truck breakdown, to have to juggle much needed animal medicines against making the next tax payment. We of the "voluntarily simple" movement have for too long struggled with undercapitalized farms, been as afraid of the uses as of the abuses of money, have glorified a self-sufficiency we've never really achieved and have ignored a mutual interdependence we don't want to be responsible to. Yes, there's also a lot of sharing, more so than in most other parts of this culture. But with everyone having less than they need and working incredibly hard to stay in that place, sharing often becomes an idealized value rather than a day to day reality.

This rambles, but somehow I'm circling around a connection. The best I can say it is that voluntary simplicity is a stop-gap, thumb in the dike tactic in a world ruled by corporate capitalists for their own ends. Change the tax structure and the agriculture policies, institute socialized medicine, reduce political units to their minimum practical scale, then maybe we have a chance of survival.

Cure

The only cure for digging in the dirt
is ideas;
the only cure for ideas
is more ideas;
the only cure for more ideas
is digging in the dirt.

—Kenneth Burke [Sent by Bruce Berkow]

Box 428, Sausalito, California 94965

SCOTT BURNS

Author of The Household Economy *and* Squeeze It Till the Eagle Grins*; columnist for* Boston Herald American

It seems that simplicity, like beauty, is in the eye of the beholder. (Reading Elgin/Mitchell and then Michael Phillips I had the feeling Michael thinks they're taking his voluntary simplicity away from him because the trend variety isn't as real or as pure as his. His arguments gave me horrid visions of Briarpatchers around the country arguing into the wee hours on the theme "Simpler than thou.")

In fact, I expect no Americans live as simply as Jesus or Gandhi and that only a handful live as simply as Thomas Merton once did.

But I don't think such absolutes are relevant.

The important thing is that the spectrum of aspiration is shifting and the flood tide of the material life style is receding. I wouldn't be at all surprised if literary characters like Fitzgerald's Gatsby soon lost their aura of acquisitive romance and were viewed more clinically as overcompensating neurotics. When that happens . . . when the Gatsby Romance Index declines . . . we'll know that Voluntary Simplicity is really taking hold.

In trying to anticipate a future with more Voluntary Simplicity I suspect that most readers will try to extrapolate to a 100 percent pure VS world rather than the bizarre amalgam we're likely to face. In fact, I think we'll see a peculiar symbiosis between the world of the corporate dinosaurs and the world of the briarpatchers.

One of the more dramatic examples is what I call Pushcart Capitalism.

A year ago here in Boston the Rouse Company (a national real estate developer and merchandiser) opened a much renovated Fanueil Hall Marketplace in the heart of the city. One of the innovations was something called The Bull Market which used the glass covered sides of the building to house an assemblage of pushcarts measuring only 3' X 6' and controlling an 8' X 8' space. The pushcarts provide local artisans and entrepreneurs with an opportunity to create a changing city market.

Given our hunger for contact with other human beings and a more personal commerce it's not surprising that the pushcarts were an instant success. Some 60,000 people a day come through the market. What's fascinating, however, is that the pushcarts have done what the nation's biggest and best retailers have never been able to do . . . they've made a quantum jump in the productivity of retailing!

Those blessed with ignorance of how retailing works should know that success in retailing depends on achieving a high volume of sales per square foot of selling area and a rapid turnover of inventory.

The more you do, the better you do.

Very successful discount operations . . . the height of commercial depersonalization . . . sell about $200 per square foot per year and turn their inventory 6 to 9 times a year. The Rouse Company, which is respected as being one of the best operations of its kind in the country, proudly announced in its annual report that it had averaged sales per square foot of $130 per year.

The pushcarts, which usually do better than $1200 a week in sales (with some higher than $2000) are turning their inventory more than 20 times a year and doing an astronomical $1000 per square foot per year!

Since the Rouse company can charge rents related to those volumes, they're very interested in the Bull Market. So pushcart capitalism is now traveling around the country by jet as Rouse sets up bull markets in its other developments!

Henry David Thoreau: "Simplify, simplify, simplify."

What all this comes down to is a partnership between a very large, exceedingly complex business and a lot of very small, wonderfully simple businesses. Not only is there more employment per dollar of invested capital but there's also less capital for a given amount of commerce.

So big and little have a positive sum game, not an adversary situation.

Technology will soon bring us further developments in the bimodal economy. The President of Raytheon Data Systems likes to talk about "horizontal marketing" and "networking" with visions of electronic mail, distributed data processing, and sophisticated inventory control that will reduce inventories, shipping costs, etc. Add "word processing" (CRT editing terminals and high speed output devices) and he is talking about a quantum leap in productivity for the very largest corporations in the United States and a shrinkage in white and pink collar employment that may eventually rival the depopulation of agriculture.

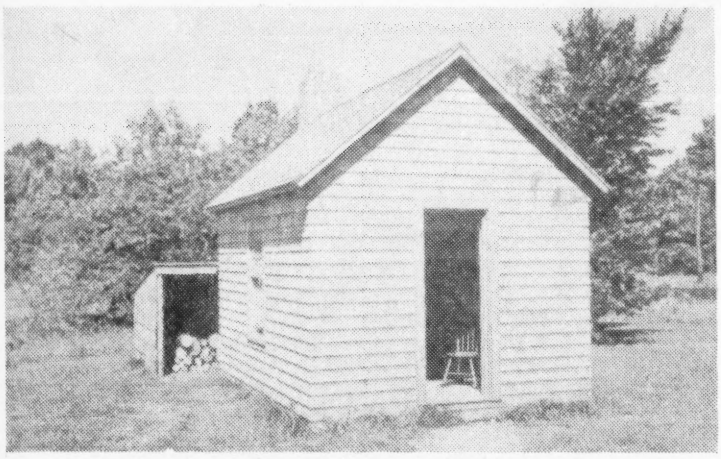
Briarpatch businesses have no need of such technology. And if they do, they'll have it in short order via the collapse in microprocessor costs. This means that regional (as opposed to national and local) businesses will get caught in the valley between the two viable modes of commerce as the conventional infrastructure starts to collapse.

Collapse? Yes. Consider the future of the Post Office. As business mail goes electronic the PO is going to find itself trying to compete using a fleet of vehicles that averages 6 mpg. . . .

So briarpatch businesses . . . which tend to be highly local . . . will grow, probably in some as yet unsuspected symbiosis with the megacorporations.

Ironically, the limit to the development of a Voluntary Simplicity/Briarpatch America isn't spiritual but financial!

We talk a lot about appropriate/intermediate technology but we don't consider the absolute necessity of Appropriate Intermediaries! We now live with the paradox of having insurance companies that won't insure nuclear power plants but will finance them because both are big and "appropriate" for each other. Big plants need Big financing . . . and that's what insurance companies can provide. It pains me to think



Thoreau's $28.12½ house at Walden Pond, as reconstructed in Concord, Massachusetts. Photo sent by Conn Nugent.

that some of that cash will come from insuring houses with solar heat and windmills!

Right now there is no financial institution in America geared toward the development and financing of briarpatch businesses. Not one.

However modest our future Volunteer Simplicity is, it will have to have a commerce and it will have to be financed with money and credit.

It will need an institution, however small, to do it.

Note: Mr. Burns had an article on The Household Economy in the Fall '76 CQ. *His book on the subject is newly out at $4.95 from Beacon Press (retitled from the hardcover* Home, Inc. *to* The Household Economy *in paper). Scott's wife Wendy recently used a pushcart at the Bull Market to sell shirts and bags silkscreened with flowers – $3,000 profit in 5 weeks, then quit winners. She liked being able to invest a bite-size amount of time and money.* –SB

LEWIS MUMFORD

Cultural historian, author of Technics and Civilization; The Story of Utopias; The Pentagon of Power; *etc.*

The comments you
ask for on 'Voluntary
Simplicity' will be found
in a whole series of my
books, beginning with
'Technics & Civilization' and
ending – provisionally! –
with 'The Pentagon of
Power.' I am not simple-
minded enough to believe
that the notion of
'Voluntary Simplicity' will
evoke them.
with due apologies
for my ironic silence
Lewis Mumford

■

Taking Charge

The best how-to book on Voluntary Simplicity is still Ernest Callenbach's Living Poor With Style *(Bantam, 1972) (EPILOG, p. 586).* Taking Charge *is more political (redistribution), religious-based (Quaker), and community-oriented. It gives you some how and a lot of why.*

–SB

Taking Charge
(Achieving Personal and Political Change Through Simple Living)
Simple Living Collective, American Friends Service Committee, San Francisco
1977; 341 pp.

$1.95 postpaid
from:
Bantam Books, Inc.
414 E. Golf Rd.
Des Plains, IL 60016
or Whole Earth

We recognize that a concept like Simple Living implies at least a middle-class existence, one having some possessions and resources to simplify, as well as the leisure to consider and try out options. It is easy these days to make many middle-class people feel guilty about their life-styles. That is not the purpose of this book. If efforts at simple living involve us in guilt-laden austerity competitions (I bake my own bread, yours comes from the community store, they eat Wonder Bread), a little consciousness raising is in order. This is not a society in which it is easy to live simply.

The idea that simple living means voluntary poverty is one we have often run into, but it is erroneous. Poverty (whether of goods or of the spirit) is often accompanied by such an emphasis on material goods and their accumulation that other sources of human enrichment go unperceived. By contrast, living simply involves explicitly analyzing the role of material goods in our lives. When are they enriching or degrading? How do they help us to accomplish our goals more easily and how do they get in the way of living more fully? People who feel owned by the surfeit of things in their lives and the obligations incurred to obtain them are not living simply. Neither are people whose lives are dominated by the lack of such material necessities as adequate nutrition, health care, fulfilling work, or housing. This double-edged character of the concept is important, because to us simple living demands a collective response to the maldistribution of resources here and throughout the world, which results in overconsumption and personal alienation in some places and grinding poverty elsewhere. It also involves an attempt to create and institutionalize alternatives to an economic system that lays waste the material world (and most of the people who live in it) in the name of profits and economic growth.

•

Some Tools for Introducing Kids to Simple Living

– A handcrank ice cream maker for honey ice cream, fruit sherbets.
– A foodgrinder to make your own peanut butter and potato pancakes, and even to grind your own wheat.
– Sturdy carpentry tools, real but child-size.
– Lumber.
– Nails, screws, nuts, and bolts.
– Sturdy gardening tools, real but child-size.
– Seeds, cuttings.
– Compost.
– Planters (might be made with sturdy carpentry tools).
– Old machines, junk.
– Old magazines, clippings, scraps of all kinds.
– Sewing supplies.
– Trunk filled with thrift-shop finery.
– Scarves, flimsy material for dancing, illusion, make-believe.
– Musical instruments, homemade as well as manufactured.
– Old sheets, blankets, clothespins.
– A cupboard at child level with cooking and clean-up supplies.
– Your child's own *tested* recipe file.
– Lots of cleaning stuff, child-safe, child-manageable.
– A bike and tools and oil to care for it.
– A bus schedule with well-used routes marked.
– Band-Aids and disinfectant.

Who Cut Down the Sacred Tree?

BY MICHAEL W. FOLEY

Replying to Lynn White, Jr.'s popular thesis that Christianity is the root of all environmental evil

Environmentalism is the order of the day – embattled or not. While the EIR's pour out, enriching the intellectual middle class and occasionally impoverishing the entrepreneurial middle class, even the sons and daughters of redneck developers speak of a career in "environmental engineering." Meanwhile, however, the cultural roots of the environmental crisis lie largely untouched. Behind the class-consciousness of the "educated" lies the same thirst for power, behind the environmentalist pretensions of the new engineers the same lust for dominance that turned the cultivated and cultivable earth into a refuse heap over the course of the last two hundred years. A few trickles of sentiment about "nature" and "limits to growth" have seeped into the popular consciousness. But by and large, the real sources of sane policy have been neglected because no one has quite pinpointed the original problem.

One analysis stands out as generally accepted. According to Lynn White, Jr., in an address published ten years ago,[1] the roots of the West's destructive attitude toward the Earth and her resources lay in Christianity and its historical domination of Western culture. An analysis all the more acceptable because now, at long last, we see ourselves on the verge of breaking that domination and setting out on new paths, as yet uncharted. Unfortunately, neither the analysis nor the new paths so far opened up seem to ring true – and therein lies our ideological confusion, the reason why we can't quite choose between disappearing into some untrammeled wilderness, immersing ourselves in the artful naturalism of a Zen monastery, committing everything to the rigorous manipulations of "environmental engineering," or plumbing for the "limitless possibilities" of the ocean's floor and space colonization.

White's argument is twofold: on the one hand historical, on the other theological. On the historical side this historian ignores the record of age upon age of environmental destruction in cultures dominated by creeds anything but Christian.[2] Paleolithic hunters and gatherers and Neolithic farmers may have lived in

Michael Foley told me that "Peter Maurin of the Catholic worker movement was once accused by **The Daily Worker** *of being a reactionary romantic, harking back to the Middle Ages. And Marin said, 'Well, the thing is we've gotten into a dead end and when you're into a dead end the only thing to do is go backwards.' "*

Foley is a Catholic interested in finding the good we've lost. He studied 19th century Protestantism in the graduate religious studies program at the University of Pennsylvania. He has been involved in the Catholic worker movement. And he has done extensive reading on monasticism "which alerted me to the flaws in Lynn White's argument."

He is a househusband now caring for four children under five.

The illustrations and captions for this article are lifted from the gorgeous tome **Life in the Middle Ages** *($35, Robert Delort, 1972, 345 pp. Universe Books, 381 Park Avenue, New York, NY 10016).*

–Anne Herbert

relative harmony with nature, but one of the conditions for such harmonious living was the ability to move on and let the land lie fallow for a number of years. Aesthetically, "slash and burn" agriculture is about as attractive as an oil field. Moreover, in wave upon wave of migration over the earth, the Paleolithic pioneer left in his wake the charred villages and camps of numberless assimilated or subjugated cultures. Paleolithic and Neolithic humanity was as imperialistic as any modern people.[3] What has changed is the scale, both of natural and of social despoliation.

Several factors, aside from religion, contribute to such an increase in scale or rapidity of human exploitation of the world. One factor is urbanization. Rapid and rapidly accelerating urbanization especially have the effect of escalating pressures on the land to produce, without the concomitant safeguards of environmental control built up over years of experience. Whatever the plausibility and ecological fitness of a "Buddhist Economics," it appears that the great Buddhist civilization of ancient Sri Lanka succumbed to the effects of massive soil erosion in the farmed-out hills surrounding its cultural centers.[4] Some have argued that the same forces account for the decline of the Roman Empire. And there is evidence that the same forces were at work in ancient Middle America – around Teotihuacan and among the Mixteca of the southern west coast of Mexico.[5] More widely represented is the effect of a specialized pastoral culture on the land. Lowdermilk points to instance after instance in the ancient Near East where unrestrained grazing has led to denudation of hillsides and the rapid and permanent decline of once populous agricultural regions. This is as true of North Africa as of Palestine, for areas of Greek or Phoenician culture as for areas occupied by Rome.[6] The infamous Mesta of Spain, with their power to enforce unrestrained grazing by sheep, is the origin of the great barren Castilian plain. Their methods imported to southern Italy may account for much of the present day poverty of that area.[7] The same methods imported to New Spain account, together with timbering for mine construction, for the rapid spread of the northern Mexican desert in historical times.[8] And Navajo sheep herding is credited with responsibility for denuding the area between the Colorado River and the Hopi lands.[9]

It is the glory, and to some extent the uniqueness, of European agriculture, on the other hand, that it not only learned from the mistakes of the ancients, assimilating and adapting Phoenician techniques of soil conservation and Greek and Roman methods of land management, but that it developed an integrated system of animal husbandry and crop raising.[10] The two complemented one another in a way that made it possible for agriculturists to continuously occupy and use the land over four thousand years. Carl Sauer suggests that the breakdown of this integrated agriculture under the influence of machinery and cash cropping signaled the beginnings of the massive new depredations on the land with which we are now struggling.[11] The achievement of European agriculture under the traditional patterns, Dasmann says, is unequaled in the history of agriculture.[12]

[more →]

Christ, the Great Architect, measuring the universe. The concept of Christ as a man lavishing care on the earth was central to the Middle Ages.

And this was a culture dominated for a good fifteen hundred years of its most vigorous activity by Christianity.

Gary Snyder seems to think that the Hebrew prophets who cut the sacred groves of the Canaanites and the Christian monks who felled the sacred oaks of the Teuton tribesmen were the forerunners of Boise Cascade and Weyerhaeuser.[13] In fact the cedars of Lebanon disappeared under the axes of those same nature-worshipping Canaanites and Phoenicians. Solomon put in his order, to be sure, a strictly commercial transaction, but Phoenician merchants assiduously plied the trade. Arab herdsmen – animist, Christian and Moslem – finished off the destruction of the great forests. Of the three groves still preserved in 1939 one was protected by a Christian church, a second by a monastery.[14] The deforestation of Europe began under the auspices of Neolithic farmers, continued under pagan Celts, Romans, Teutons.[15] After two thousand years of Christendom (if we may count the last two hundred), Europe has retained more forest than any other continuously cultivated land in the world,[16] and this seems to be attributable to the twin villains of WASPish and Marxian historiography, Church land holdings and the vilified feudal aristocracy.[17]

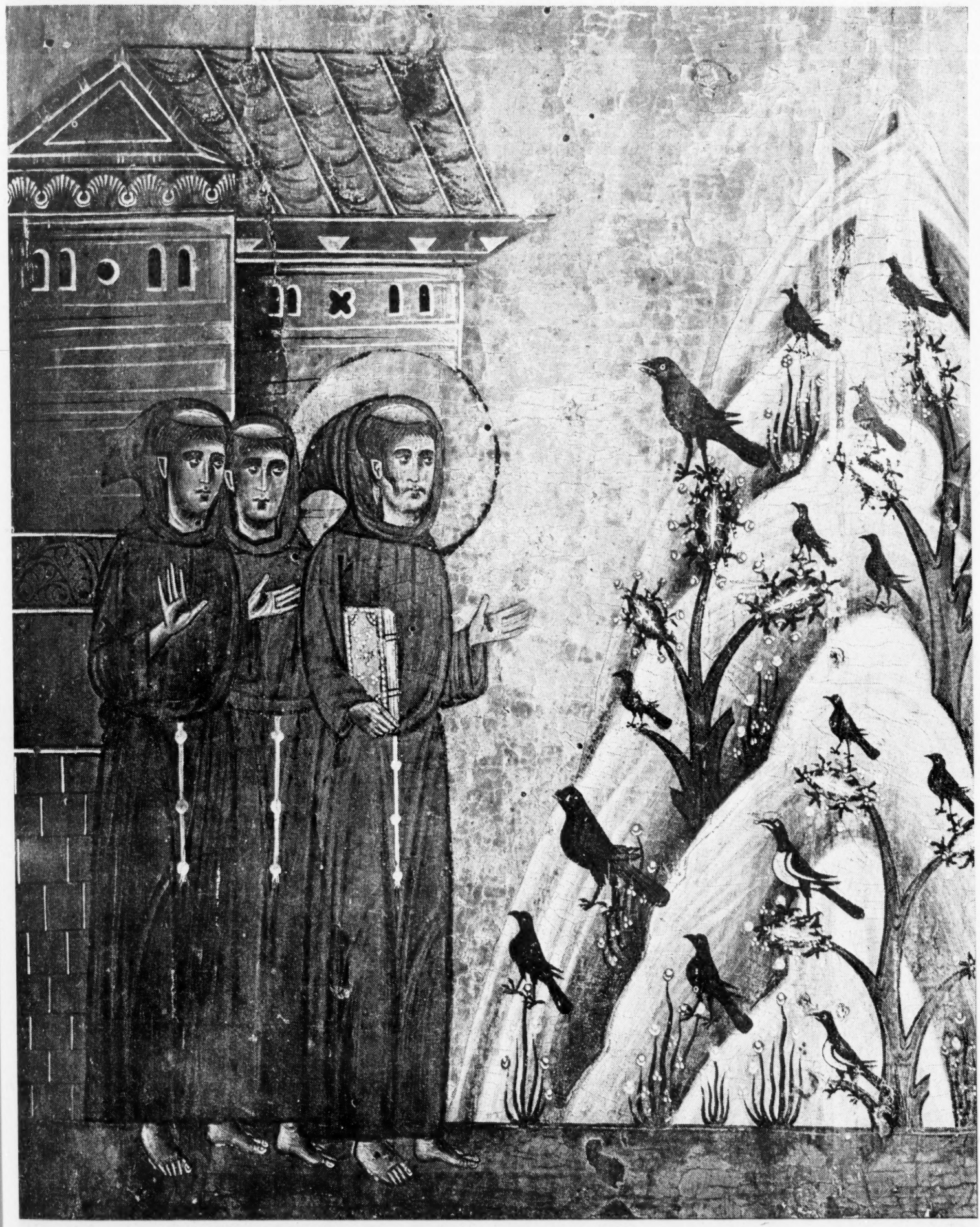
The question arises: Where does the break occur, the break that produced Boise Cascade, California agribusiness and the modern sprawling suburb? Whatever the influence of ideology on environment, we are not dealing here with the simple genesis, by a Christian culture, of the most rapacious civilization humanity has ever known. Quite the contrary, in fact, appears to be the case. The decline of European stewardship toward the Earth and the upsurge in European depredation of other peoples was accompanied by the beginnings of the decline and fall of Christendom as a religious-political complex and of Christianity's increasing difficulty in finding a place for itself in the modern world. The Age of Enlightenment, from which most of us still take our religious and philosophical bearings, was really the epiphany of that bourgeois (i.e., urban) civilization that had just conquered half the world and was on the verge of subduing nature herself. Beneath the reasonable veneer and genial quest for "the natural" broiled a society of the grossest inequities, where more men, women and children were imprisoned and hanged for trifles in a few decades than there were heretics burnt in all the Ages of Faith.[18]

But before we go further it would be well to turn to the "theological" argument, since that is so crucial in most contemporary accounts of the role of Christianity in our cultural disregard for the environment. The general idea is that of its nature Christianity generated a disrespect for the Earth and its tender cultivation. Gregory Bateson has argued the point most concisely:

> If you put God outside and set him vis-a-vis his creation, and if you have the idea that you are created in his image, you will logically and naturally see yourself as outside and against the things around you. And as you arrogate all mind to yourself, you will see the world around you as mindless and therefore not entitled to moral or ethical consideration. The environment will seem to be yours to exploit.[19]

Logical perhaps. But neither the history of Christianity nor the history of humanity's relation to the environment bear the thesis out. Something more complex is at work both in the Christian approach to reality and in the concrete experience of humankind in relation to its environment.

On the one hand, the God of the Judaeo-Christian tradition is "put outside" (not "vis-a-vis") creation primarily to discourage a specious and all too common identification of Mind and environment. The Jewish prophets' cavil against "idolatry," so grossly unfair in many respects to the realities of polytheism, rings unmistakably true in countless cases: "They make their gods in their own image." The image most common in ancient Hebrew experience was that of the ruler. There is no question that political expediency pulled the puppet strings of many a Near Eastern deity. Transcendence lends a certain moral leverage to the God of Israel: no ruling class may claim Him, no nation, not even Israel, may claim immunity from His justice. "God is not mocked." It is certainly true that transcendence alone did not save either Israel or the Christian churches from various forms of cultural captivity. But prophets have not been lacking either. The transcendence of God, like the transcendence of nirvana or the buddha-nature or Brahman, serves as well to break a certain bondage to nature, a kind of mindless fatalism too familiar in peasant cultures closely linked to the Earth. Transcendence is the key to a sense of creation



St. Francis of Assisi – we can recognize him by the halo and stigmata – preaches to the birds. His love for God's creatures confirmed his love for their Creator.

(Lynn White, Jr., to his credit, said of St. Francis, "He tried to depose man from his monarchy over creation and set up a democracy of all God's creatures. . . . I propose Francis as a patron saint for ecologists." –SB)

A number of pagan superstitions, customs and monuments were taken over by the Church. This stone from Kilnasaggart, Ireland, is of Druidical origin, and had Christian symbols added.

that can break the bonds both of fatalism and of particular interest.

On the other hand, it is just this factor – particular interest, combined in numberless proportions with stupidity and historical accident – that accounts for the remarkable inability of any ideology to withhold a people's hand from the environment that nurtures it. There are times when this combination of private and public venality, stupidity, and historical chance have destroyed a people. At other times the forces of change have overturned ideology and replaced it with a more amenable set of ideas, a true "ideology" in the Marxian sense, an idolatry. In complex societies such transformations were not uncommon – the Hellenistic world provides examples. The most momentous such displacement from our point of view occurred with the rise of a commercial and eventually an industrial civilization in the West. Just as in the Hellenistic world the enormous shift to an urban and commercial culture brought in its train a disaffection with the "cosmic" ideologies in general, the cultivation of skepticism, and eventually a new thirst for a reunifying vision – in sixteenth century Europe, the shift to a commercial, entrepreneurial and eventually thoroughly individualist civilization shattered the ancient Christian synthesis and called up both skepticism and the desire for a religious vision that would make sense of the new realities.[20] The theological shift was not long in coming. By the seventeenth century, the English Puritans had forged a new Christianity, root and branch at odds with the social vision and environmental wisdom of Christendom, but thoroughly at home with mercantile individualism. Other religious bodies followed suit. The influence of the new theologies has been so pervasive that the term "puritan ethic" can only be misleading. By the eighteenth century, the specifically Christian and Puritan (Calvinist) underpinnings had quietly disappeared in the minds of most English and American bourgeois and entrepreneurs. But the general outlines – the moralism of work, the exaltation of thrift, the deification of private property – are as clear in **Poor Richard's Almanac** as in the (anti-) Poor Laws of eighteenth and nineteenth century England. The attitude of conquest, nurtured by European mercantilism over three centuries, was extended by the nineteenth century to nature: raw, untrammeled nature was being conquered – not cultivated as Europe had done for centuries – in the name of an increasingly irreligious exaltation of Man.

The history of the modern approach to the environment, in short, is the history of the West's uprooting from historical Christianity.

Isn't it remarkable, for instance, that just thirty-five years ago Gabriel Marcel, the French existentialist, could quote these lines of a contemporary novelist, who speaks of a "certain sense of holiness 'which is the most precious thing the West has known, a certain attitude of reverence for existence – by which we must understand everything which exists, oneself and the world outside oneself, the mysteries which surround us, the mystery of death, and the mystery of birth, a certain veneration in the presence of life, a certain love, and (why not acknowledge it?) a certain state of poetry which the created world produces in us.' " And Marcel goes on to comment: "It is precisely this sense of holiness, this fundamental reverence for life and for death . . . it is this state of poetry produced in us by the created world which, during the last decades, and more particularly of recent years, has given way to the pressure of pride, of pretentiousness, of boredom and despair. . . ."[21] Elsewhere the same author speaks of "the reverential love for the created which men of my generation have seen drying up before their eyes in so many souls. . . ."[22]

This is not isolated sentiment, but the common experience of a great many European intellectuals on the brink of discovery of the ecological disaster which we now recognize so clearly. Some thirty years earlier, writing just before the First World War, another Frenchman, Charles Peguy, perceived in his time the end of the *vrai ancien regime*, that is, of the qualities of life that Christendom shared with all the ancient world, qualities that included respect for the land, craftsmanship, frugality, the ethics of "enough," the sense that the poor man and the humble man were the true inheritors of the earth, the rich and the powerful mere victims of a dangerous *hubris*.[23]

If this attitude, this complex of ecologically sane attitudes, persisted even into the twentieth century in the heart of industrialized Europe, it had its roots far back in the past of the land; and it was by no means foreign to the spirit of the church that ruled men's minds at least from the fifth century to the fifteenth. Again, Teilhard de Chardin, whose cosmic Christ is seen by some as a novelty in Christianity, the product of a belated attempt to reconcile science and religion, on the contrary traces his cosmic vision back to his spiritual master, the sixteenth century Spanish mystic, Ignatius of Loyola. Ignatius, founder of the Jesuits, was as hard-headed a religious reformer as any, but his **Spiritual Exercises** bespeak a mysticism that is as thoroughly of the Earth as it is of heaven. The culminating meditation of the Exercises is a fourfold development of the theme of God's presence in all creation. This wasn't an idle intellectual exercise for Ignatius, but a lived experience, a mysticism of nature that echoed in all he did.

Nor is Ignatius' sensitivity to nature a flower of the Renaissance sprung up on foreign soil. It is in strict continuity with the whole medieval tradition. That much should be clear to anyone who knows the ancient monastic liturgies, with their rhythmic celebration of the natural hours of the day and of the passing seasons of the year. If it is true that the monks were the first cultivators of the wilderness, the pioneers who open new areas to agriculture, it is also important to see that for the monks the "wilderness" was not a hostile and foreign nature but the favored place where man encountered God. There is a certain ambivalence here which is important for understanding Christianity's relation to nature. For in the eighteenth century the distinction all cultures have maintained between cultivated or known territory and the wilderness or the unknown perimeters of one's own land began to take the shape of a predilection for the garden in opposition to the "howling wilderness." These metaphors dominated eighteenth and nineteenth century thought about nature and especially America's vision of herself.[24] But for the monks there is no such sharp dichotomy. One met demons in the loneliness of the "desert," it is true, but the power of Christ was experienced in the shattering of those demons and the re-emergence of the wilderness as the abode of God. This is especially true of the earliest monks, the Desert Fathers, who were cultivators on the smallest scale. But early or late, the monks in their monasteries learned to live with nature, and monastic pioneers were never ravagers of the earth.

Even the prophetic and missionary war on "idolatry," however ill-informed, was mitigated by the solid principle that life is not served by exalting one aspect of it over another – human sacrifice in the name of fertility was the abomination of abominations. If the groves were cut, they were not, at least in Christendom, "desacralized." The natural reverence which a place evoked was an obvious reason to maintain a shrine to the Creator on that spot, whatever the past associations. Nature no longer held a multitude of divinities; it betrayed throughout the presence of One God. "Heaven and Earth are full of the glory of God," goes an ancient hymn, still part of the Catholic Mass, itself a celebration of the transmutation of the ancient cycle of death and rebirth.

Even in the midst of colonialism, in the midst of that massive cultural shift we have talked about, when the churches gave themselves over to the alien gods of European greed, there were important witnesses within Christianity to the ancient respect for man and nature. One of the first to register the bad conscience of the West was also one of the first to register the link between colonization and the destruction of the environment. Las Casas, himself a colonist and plantation manager, spent the last forty years of his life as a Dominican friar writing the history of the early Spanish conquest and carrying to the Spanish throne his polemics against early colonial practice. The result, as Carl Sauer has said, was that "The Spanish government developed and applied principles of conservative stewardship for which we find no parallels in other colonial countries at the time."[25] Among the most important restraining influences were the friars, the Dominicans and Franciscans, and the Jesuits. However little respect the missionaries had

for Indian culture and religion (and there were even a few with a deep sensitivity in this respect[26]), they organized the Indians under their protection into self-sufficient communities, once again attempting to establish some sort of basic harmony with the land.[27] Nothing similar was attempted in areas under English influence until the disastrous reservation system of the nineteenth century.

It is perhaps no accident that this first voice of conscience was that of a Dominican friar, nor that principles of conservative stewardship were worked out under a Catholic monarch. The Catholic tradition maintained a connection to the religious and cultural roots of that "reverence for the created" of which Marcel speaks. Protestantism, by and large, was cut off from those roots by the circumstances of its birth. Those circumstances included a new philosophical and cultural heritage, one which ancient Christianity had not had to reckon with in its encounter with Greek civilization. This was the Renaissance discovery of the "infinite," not as an attribute of God alone, but of the visible universe as well.

Ancient and biblical Christianity, with its notion of apocalypse as the term of human history, stood side by side with all ancient religious systems in their appreciation of the finitude of the universe and its possibilities. However destructive of an ecological attitude toward the Earth and its resources the apocalyptic vision may appear in theory, in fact it has generated a real respect for the use of the Earth in our history. Precisely because the earth is finite, the rule of the greed-besotted whore (Babylon/Rome/The City) must come to grief. Precisely because the earth is finite, an ethics of finitude, of "enough," and of the right measure formed the basis for medieval Christendom. It was the discovery of real or apparent infinity that upset this ancient balance: the discovery of the supposed infinitude of the ability of money to breed money in the fifteenth and sixteenth centuries, of the "infinite" resources of the New World in the sixteenth and seventeenth centuries, of the "infinite" power available to those who could tap it in the eighteenth through twentieth centuries, of the "infinite" second chance of space in the middle of the twentieth century. Infinity justifies waste, unlimited consumption, unqualified growth in a self-propelling race to overcome infinity by using it up. Behind the compulsion is the terror of infinity that so overawed Pascal and that has haunted modern technological civilization ever since.

The pursuit of this "false infinity" (to use a phrase of Hegel's), together with the increasing mechanization and bureaucratization of daily life, has led to increasing abstraction in Western society – in our relations to nature, to one another and ourselves, and to society as a whole. From an agricultural society bound to nature with bonds that sometimes grated we have become an urban society who communes with nature by means of potted plants and blazing trail bikes. The bawdy that Chaucer and Shakespeare didn't scruple to mirror, the stern effort to "make your bodies a living sacrifice" of the Puritans, gave way in the wake of the mannered eighteenth century to an extraordinary attempt to separate body and soul, animal nature and social grace in Victorian England. Augustine's latent Manichaeism comes home to roost not in the furious asceticism of LaTrappe (birthplace of the Trappist monks) but in the polite drawing rooms of a bourgeois industrial society. The contemporary effort to renew contact with our bodies has hardly begun to heal the breach because the abstract and Manichaean character of industrial culture has bred simultaneously a determination to have done

Rysum in Lower Saxony gives a good idea of what a medieval village looked like. Built to an approximately circular plan, it has a very sensible system of roads and streets. The streets branch out from the centre like the spokes of a wheel, ending at the outer ring road that encircles the village. In the centre, towards which all streets converge, stands the house of God.

with deep and lasting personal relationships. It is hard, indeed, to see how the stable society we all talk about might be built without the stability traditional societies created in personal relationships through a thousand rules and sanctions.

Thus, the West has been suffering from fits of abstraction for well over two centuries. The abstract freedom from all bonds that the city represents – where anything can be found and nearly everything is permitted – is bought at the price of alienation from others and from nature. The abstract triumph of science and technology over the bondage of nature and nature's gods that is the glory of the West is bought at the price of the despoliation of the world's material resources and of our own, both spiritual and physical.

Religion itself reflects the abstraction of the modern world. A regular rhythm can be followed in our history since the Reformation. First an extraordinary proliferation of sects, each with its angle on the Christian faith; followed by a broadening and liberalizing of the established churches in the period of the Enlightenment to the point where all specific content has been drained from Christianity; then the cycle repeats itself with the Great Awakening of the late eighteenth century, and again into the twentieth century. The New Religions of the New Age, for all their diversity, make their primary appeal on the basis of an abstract unity of purpose. Western interest in Zen, and earlier in the Vedanta, was based on the assurance, ingenuously proffered by native practitioners, that here at last was a creed that was no creed, but simply "the way." Zen thus appeals as much for its lack of concreteness as for its extraordinary attention to the present moment. Despite the latter pre-occupation in certain areas of the Buddhist tradition, the East has brought us a largely other-worldly tradition. It appeals, again, to the Manichaean and rationalist tendencies in our culture. And we cannot help but feel some discomfort. The western drive for a contemplation wedded to the active life – for "incarnation" and "sacrament" – manifests itself in an extraordinary proliferation of publications, retreat centers, mass gatherings, and local community-building. The Zen Center in San Francisco even becomes involved in local neighborhood action.

What does all this mean for environmentalism? It means, first of all, that we are still groping our way, barely free of the fetters that tie us to an abstract and self-destructive civilization. Even our efforts to break free – the human development movement, the New Religions – are in fact bound. We lack roots with which to nourish ethical and religious growth in the direction of a sane use of the Earth, because we have broken with an ancient tradition in mistaking it for the modern heresies we now abhor. Yet we are bound to those same heresies and find it difficult to fight free. The road to rebuilding ourselves and our culture lies across the centuries in reawakened historical sense – in an appreciation for our cultural roots (including our incarnational, sacramental, active/contemplative predilections), and in an understanding of the contradictions that have wreaked havoc on the modern (and contemporary) experiment at cultural and religious emancipation. The West, in emancipating herself from the restraints of the past, bound herself to a system of infinite demands which neither humanity nor the Earth can meet. Recognizing the nature of this new bondage may show a way to set us free. ■

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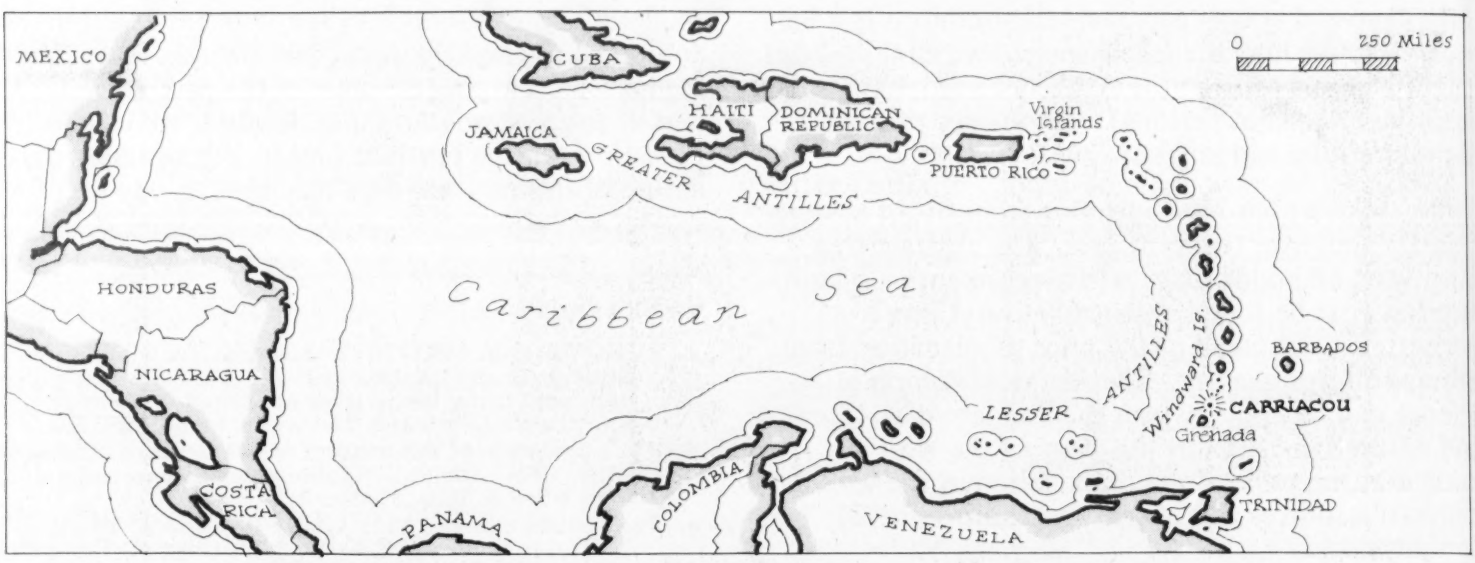


Don Ryan

Preserving an Endangered Species

THE HAWKSBILL TURTLE

Through Local Economic Use

BY KEVIN STEVENSON

FOR CENTURIES the Hawksbill sea turtle has been a common inhabitant of the seas surrounding the island of Carriacou. Situated just north of Grenada amid isolated reefs, beaches, and volcanic cays, the Carriacou locale is an ideal home for the Hawksbill. Before Europeans arrived, the Hawksbill was abundant with a stable population. But colonization by Britain and France marked the end of that stability. For over three hundred years human predation on the sea turtles has been increasing. In 1970 the Hawksbill was officially declared an endangered species.

The Hawksbill (*Eretmachelys imbricata)* is one of five species of sea turtles distributed in warm seas throughout the world. Besides being a source of food for local inhabitants and tourists, the whole shells, 'tortoise shell' jewelry, and entire mounted turtles can be found in novelty stores throughout the world. In Japan, where shells are of ceremonial value, no restrictions are placed on importation. As a result, Japan is currently the largest international market for Hawksbill products. Current trends point toward eventual extinction.

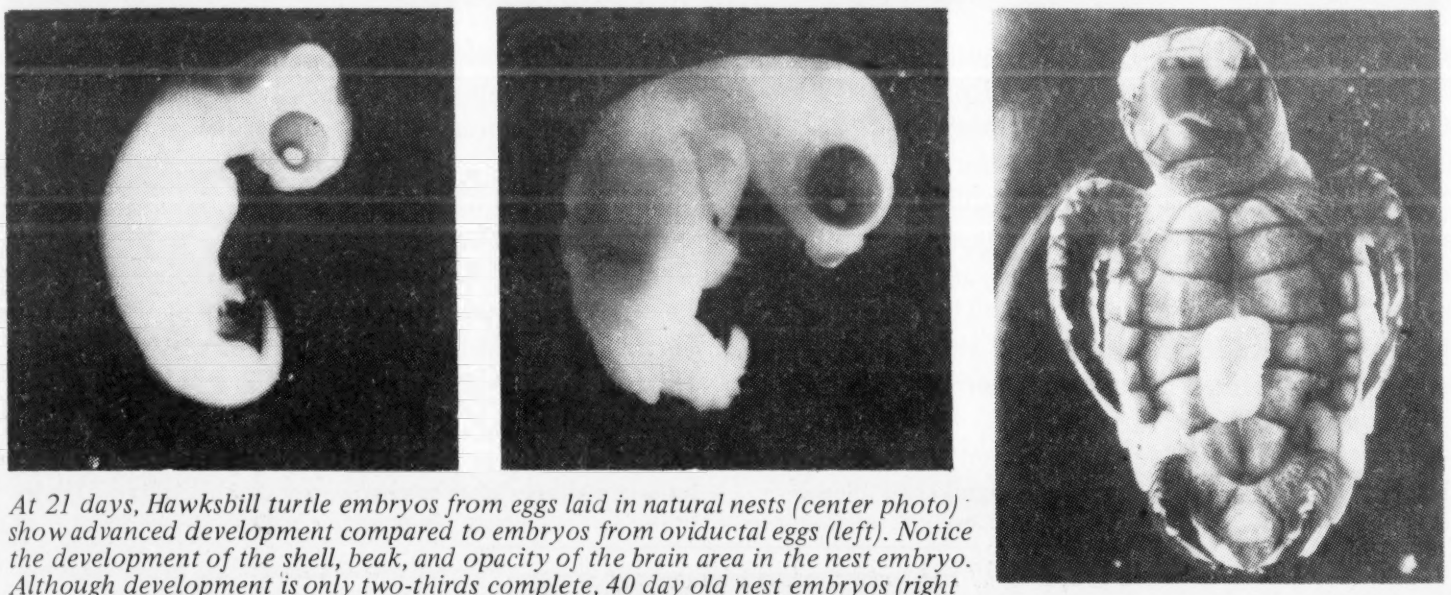
Faced with this possibility, some governments have passed legislation banning the fishing and importation of the animal. The United States has declared it illegal to import Hawksbills and Hawksbill products. In Grenada, the catching of the turtles is prohibited during the nesting season. It is illegal to take a nesting female, the eggs she lays, or any turtle under twenty-five pounds. Unfortunately, the habits of the Hawksbill inhibit effective enforcement of these laws. Hawksbill turtles inhabit scattered reefs and rock banks and prefer small isolated beaches for nesting. The turtles nest in a diffuse manner. They do not reproduce in huge rockeries like the Green or Ridley turtles, but utilize almost any undisturbed beach. The islands of Carriacou and Grenada host many such areas spread over hundreds of square miles of ocean. Effective enforcement requires extensive patrols, the cost of which is prohibitive.

It is the nesting habit itself, though, which may prove the final downfall of all sea turtles. Sea turtles lay their eggs on land. During the nesting season which peaks during May or June, female Hawksbills emerge on beaches throughout the Grenadines. They lay at least two clutches of 100 - 150 eggs a season, with an interval of 2 - 3 weeks between nestings. Very often the second clutch will be laid on the same beach as the first. This predictability makes it easy for a fisherman who finds a nest to catch the adult female when she returns to lay another clutch. The uncertain future of the Hawksbill directly results from this predictable nesting habit.

But what of the men who catch turtles and plunder their nests? On many islands in the Caribbean, few jobs are available for the large number of inhabitants. Little tourism reaches islands like Carriacou. Drought affects much of the area. The islanders are forced to make do with what they have and what they have is

Over the last few years it has become obvious that "Conservation = Local Economy." Environmental Research Projects (105 Davenport Rd., Toronto, M5R 1H6, Canada and 212 E. Broadway, New York, NY 10002) plunged into coral reef studies and wound up enmeshed in a human-turtle society. Different from "purist" preservation-and-forget-the-humans, this was an early attempt to sustain both human and turtle life forever. ERP has lots of fine projects. Write for a brochure.

–Peter Warshall



At 21 days, Hawksbill turtle embryos from eggs laid in natural nests (center photo) show advanced development compared to embryos from oviductal eggs (left). Notice the development of the shell, beak, and opacity of the brain area in the nest embryo. Although development is only two-thirds complete, 40 day old nest embryos (right photo) have well developed and pigmented shells, and external features which do not undergo further change before hatching.

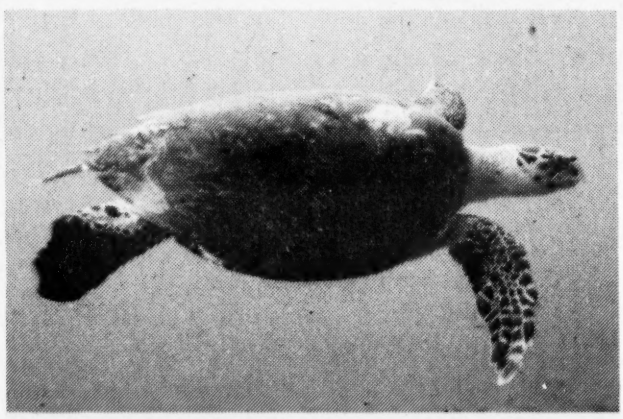
Don Ryan

only the seemingly unlimited ocean. A single Hawksbill may represent one-third of a fisherman's annual income. The need for external income is greater than ever before. To West Indians, the choice really is 'us or them.'

So that's the dilemma: if continued predation occurs, the Hawksbill faces probable extinction, but if turtle fishing is effectively prevented, the fisherman faces severe hardship. However, the animal cannot last forever at present levels of fishing, and when it goes, so may the fishermen.

In 1975, while Environmental Research Projects was conducting research on coral reefs in the Grenadine islands, residents of Carriacou presented us with the dilemma of the turtles and the fishermen. How, they asked, could they stop the decline of the Hawksbill and still make use of this valuable resource?

We began by learning from the local fishermen. First, we learned that the market for turtle products in the Grenadines is largely local. The Hawksbill is seen primarily as a source of food. Therefore international restrictions (Hawksbill shells for resale) have little effect on the fishing pressure. Second, we learned that the majority of turtles captured are egg-bearing females. Slaughter of these animals represents a potential loss of hundreds of hatchlings as well as the adult females. Third, virtually all nesting beaches in the area are patrolled by fishermen; nets are set in the approaches to these beaches. There is little chance that a nesting female or her eggs will escape human detection. And finally, the destruction of the nests by non-human predators is severe. Of a dozen nests examined by ERP, all were invaded by crabs or ants before the eggs could hatch. This was true even when the nests were surrounded by wire screening. Faced with these circumstances, we decided that the most effective actions must reduce natural and human predation of eggs.



Hawksbill turtle

By summer of 1975, we started an experimental hatchery. We purchased eggs from locals at approximately $ .06 an egg. These eggs came from turtles that were about to be slaughtered; the eggs would be destroyed regardless. The monetary incentive encouraged cooperation with our conservation program. In all, over 1,500 Hawksbill turtle eggs were removed from the ovi-ducts of slaughtered turtles or purchased from persons who had discovered Hawksbill nests.

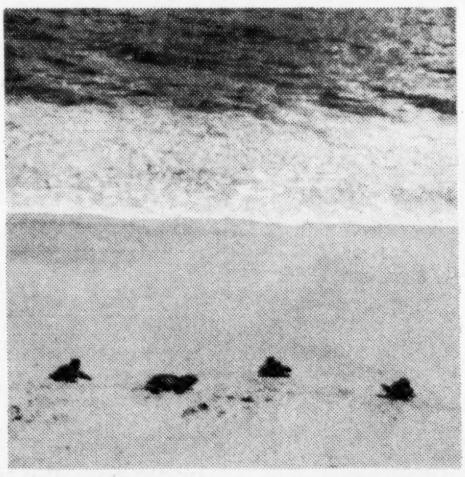
Once collected, the eggs were placed in insulated containers. We made mistakes. Initially, the eggs were placed in deep buckets and watered daily. When the eggs hatched, many of the young were unable to reach the surface and died of suffocation. subsequently, all eggs were placed in shallow boxes with sand loosely packed around them, and watered only once a week.

Throughout the summer, eggs were purchased and placed in boxes. Selected eggs from oviducts and nests were opened at weekly intervals to compare the development of the embryos. By August, the first eggs had begun to hatch. Although the incubation period of the Hawksbill is normally 60 days, eggs

taken from oviducts seemed to require a much longer period. In addition, preliminary results showed that the hatching rate among eggs taken from nests (20 - 30%) was lower than among those taken from the slaughtered turtles (70 - 80%). Another study in 1976 indicated that the disparity might be due to an attachment between embryo and shell. The attachment develops soon after the eggs are laid, and is absent in eggs taken from slaughtered turtles. The physical movement caused by the removal of the eggs from the nest disturbs the attachment in many of the eggs.

While eggs were incubated and gathered, we talked to the islanders about conservation of the Hawksbill. Several school teachers indicated an interest in color slides illustrating basic aspects of ecology, conservation, and their application to life in the Grenadines. We donated slide shows. In the hope that the islanders would continue conservation efforts, several young West Indians were involved in the research program.

WHEN THE FIRST EGGS hatched, most were released from protected nesting beaches. It might have been better to release young from a boat at sea, but faced with almost no natural history information we made no assumptions. How do females select a beach on which to nest? Perhaps the crawl to sea makes an impression on the young turtles; enough that when they reach maturity, they return to the same beach to lay their eggs.



Within 24 hours of hatching, the young turtles are allowed to crawl down a nesting beach into the sea. Guards, out of sight, shoo away birds and crabs which might otherwise decimate the hatchlings in their dash for the sea.

Once the young turtles were released, their fight for survival began. We watched as the tiny animals instinctively made their way down the beach. Washed repeatedly back by the waves, the turtles eventually made it into the ocean. Keeping just below the surface, the young swam frantically out to sea using their hind flippers. Their destination is unknown, for the young Hawksbills will not be seen until they reach a shell size of about six inches.

Several of the newly hatched were kept captive so we could watch them eat, grow and live. Four babies were released into a natural seawater pond. They immediately nibbled at anything remotely edible. Eventually, each turtle chose a different food (sponge, algae, jellyfish) confirming the omnivorous habits of the Hawksbill and their adaptation to diverse coral reefs. We learned Hawksbill young had to surface to breathe about once every 40 seconds but could stay submerged up to five minutes. We learned that in close quarters they tend to fidget and bite each other.

In the fall of 1976, after almost two years of captivity, we decided to release all four turtles. A sense of anticipation surrounded us as we took the turtles out to a reef near an island off Carriacou. We couldn't help but feel a certain amount of relief for the turtles: their whole life had revolved about the sterile world of the concrete walls of the tank they lived in. Now they were to be released into the world in which they belonged. But we were also apprehensive. Could the turtles survive in the wild, having had only the experience of a protected enclosure? As the hands that had held them captive for so long were taken away, they reacted in seeming disbelief. Momentarily hanging suspended in the water, they looked about, then quickly shot off to disappear into the Caribbean blue. Days later, as we were working on the coral project, we would often see the same turtles on and about the reef. Our satisfaction gained from their release was complete.

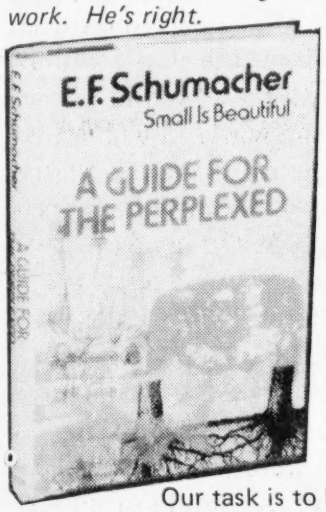
But what of a permanent conservation program? Is it necessary for hatchlings to be released or can they be held in captivity until they reach a larger and less vulnerable size? Do they have to be released from beaches or can they be let go from the sea? What do the Hawksbills do during the missing year? Where do they go? What is the carrying capacity of the coral reef? How many Hawksbills will each kind of reef support? Which would make the best preserves? It is going to take time to even begin to answer these questions. And unfortunately, time is against the Hawksbill.

At the present time, there is a movement to have a regulatory treaty signed by the major countries importing and fishing the Hawksbill. The movement is spearheaded by the International Union for the Conservation of Nature and Dr. Archie Carr of the University of Florida. Dr. Carr, a leading world authority on sea turtles maintains that the only way to take the Hawksbill off the endangered list is to remove the market for the animal. This effort will also take time and is it better than teaching game management to local fishermen – allowing them to both catch and hatch their food?

Finally, to encourage fishermen to protect eggs and to refrain from destroying nests, money (approximately $ .06 per egg) is involved. Money depends upon international support from more affluent groups who share a concern for the future of the Hawksbill. The immediate objective is simply to buy time until a more permanent solution can be achieved. ■

A Guide for the Perplexed

E. F. Schumacher, when confronted by a voracious bear, has a talent for reaching quickly down its throat, seizing its tiny tail, and jerking it inside out. He did that to economics in Small is Beautiful. *Now he's done it to philosophy in this new book which he regards far more fondly than his previous work. He's right.*



—SB

A Guide for the Perplexed
E. F. Schumacher
1977; 147 pp.
$8.95 postpaid
from:
Harper & Row
Keystone Industrial Park
Scranton, PA 18512
or Whole Earth

Our task is to look at the world and see it whole.

•

At the lowest level, that of "minerals" or inanimate matter, there is pure passivity. A stone is wholly passive, a pure object, totally dependent on circumstances and "contingent." . . .

A plant is mainly, but not totally, passive; it is not a pure object; it has a certain, limited ability of adaptation to changing circumstances: it grows toward the light and extends its roots toward moisture and nutrients in the soil. A plant is to a small extent a *subject*, with its own power of doing, organizing, and utilizing. . . .

At the level of "animal," through the appearance of consciousness, there is a striking shift from passivity to activity. The processes of life are speeded up; activity becomes more autonomous, as evidenced by free and often purposeful movement — not merely a gradual turning toward light but swift action to obtain food or escape danger. The power of doing, organizing, and utilizing is immeasurably extended; there is evidence of an "inner life," of happiness and unhappiness, confidence, fear, expectation, disappointment, and so forth. Any being with an inner life cannot be a mere object: it is a subject itself, capable even of treating other beings as mere objects, as the cat treats the mouse.

At the human level, there is a subject that says "I" — a person: another marked change from passivity to activity, from object to subject. To treat a person as if he or she were a mere object is a perversity, not to say a crime. No matter how weighed down and enslaved by circumstances a person may be, there always exists the possibility of self-assertion and rising above circumstances. Man can achieve a measure of control over his environment and thereby his life, utilizing things around him for his own purposes. There is no definable limit to his possibilities, even though he everywhere encounters practical limitations which he has to recognize and respect.

This progressive movement from passivity to activity, which we observe in the four Levels of Being, is indeed striking, but it is not complete. A large *weight* of passivity remains even in the most sovereign and autonomous human person; while he is undoubtedly a *subject*, he remains in many respects an *object* — dependent, contingent, pushed around by circumstances. Aware of this, mankind has always used its imagination, or its intuitive powers, to complete the process, to extrapolate (as we might say today) the observed curve to its completion. Thus was conceived a Being, wholly active, wholly sovereign and autonomous; a *Person* above all merely human persons, in no way an object, above all circumstances and contingencies, entirely in control of everything: a *personal* God, the "Unmoved Mover." The four Levels of Being are thus seen as pointing to the invisible existence of a Level (or Levels) of Being above the human.

•

The modern experiment to live without religion has failed, and once we have understood this, we know what our "post modern" tasks really are.

Scientific Quotations — The Harvest of a Quiet Eye

The highest yield-per-page of any quotation book I've seen (dozens). If you like the samples here you'll want the book for further sampling. A bathroom, rather than a bedside, book this is.

—SB

Scientific Quotations: The Harvest of a Quiet Eye
Selected by Alan L. Mackay
Maurice Ebison, ed.
1977; 192 pp.
$14.00 postpaid
from:
Crane, Russak & Co., Inc.
347 Madison Ave.
New York, NY 10017
or Whole Earth

'Life is very strange' said Jeremy. 'Compared with what?' replied the spider.

—Anonymous

•

All the steam in the world could not, like the Virgin, build Chartres.

—Henry Brooks Adams 1838-1918

•

An intellectual is someone whose mind watches itself.

—Albert Camus 1913-1960

•

Genius . . . means transcendent capacity of taking trouble.

—Thomas Carlyle 1795 - 1881

•

The manuscript in the drawer either rots or ripens.

—Maria von Ebner-Eschenbach 1830-1916

•

The greatest power available to man is not to use it.

—[Meister] Eckhart ca 1260-1327

•

I hate quotations. Tell me what you know.

—Ralph Waldo Emerson 1803-1882

The Unsettling of America Earth's Answer

Several of the most praised pieces to appear in The CQ *have now arrived in book form, far more extensive than we printed and worth your further look.*

Wendell Berry's The Unsettling of America *was excerpted as "Exploitation and Nurture" in the Spring '77* CQ.

Earth's Answer *is a collection of talks from Lindisfarne, some of which (by E.F. Schumacher, Russell Schweickart, Brother David Steindl-Rast) you may have read here. Others — by William Irwin Thompson (founder of Lindisfarne), Gregory Bateson, Richard Baker-roshi, Lewis Thomas, John Todd, and others including me — you may want to read.*

—SB

The Unsettling of America
(Culture & Agriculture)
Wendell Berry
1977; 228 pp.
$9.95 postpaid
from:
Sierra Club Books
530 Bush Street
San Francisco, CA 94108
or Whole Earth

Earth's Answer
$6.95 postpaid
from:
Harper & Row
General Books
Keystone Industrial Park
Scarnton, PA 18512
or Whole Earth

Odd Bodkins — *Dan O'Neill's Fred and Hugh arrived on Mars some issues ago by stowing away on the Viking Lander. Fred, the bird, has assumed ownership of the planet. Next issue, learn the inner meaning of "Sweet Jesus in a tarpit."*

I'VE KNOWN FRED FOR TWENTY YEARS..

I'VE BEEN WORKING ON THE.. UH.. THE.. ER..

DAMN! I FORGOT AGAIN..

I NEVER ONCE THOUGHT HE COULD GO THIS FAR.. HUH..

HEY!! YOU CAN HELP ME!! YOU CAME HERE WITH KING FRED THE FIRST.. YOU KNOW THE WORDS TO THE SONG..

KING? SONG?

YEAH.. THE SONG.. YOU KNOW.. THE **NIGGER SONG**! KING FRED APPOINTED ME **HEAD NIGGER** AND GAVE ME THIS THING CALL A **HAMMER** AND IT'S MY PRIVILIDGE TO POUND ALL THIS ROCK INTO GRAVEL SO WE CAN COVER THIS PLANET WITH ASPHALT..

AND BEING AS **HEAD NIGGER** IS SUCH AN IMPORTANT JOB IN AN EMPIRE.. YOU CAN'T HAVE AN EMPIRE WITHOUT ONE.. KING FRED GAVE ME A **SONG**.. BUT I FORGET IT A LOT..

.. COVER THE PLANET WITH **ASPHALT**

KING FRED SAID TO ME "YOU TAKE THIS IMPLEMENT OF **SLAVERY** CALLED A HAMMER AND CRUSH ROCK AND SING THIS SONG AND SOON ALL THE ROCK WILL BE GRAVEL AND WE CAN START PAVING.." HE SAID THAT TO **ME**!

HE TELLS ME **LOTS** OF IMPORTANT THINGS.. ME BEING THE HEAD NIGGER AND ALL THAT.. AND I DON'T WANT TO LET HIM DOWN.. SO CAN YOU TELL ME THE WORDS?

YOU KNOW.. "..I'VE BEEN WORKING ON THE... ??" LET'S SEE.. UH.. "LIVELONG DAY.." THAT'S **PART** OF IT..

IT'S **HARD** TO BE THE HEAD NIGGER.. THERE'S **SO** MUCH TO REMEMBER..

"..I'VE BEEN WORKING ON THE RAILROAD"?

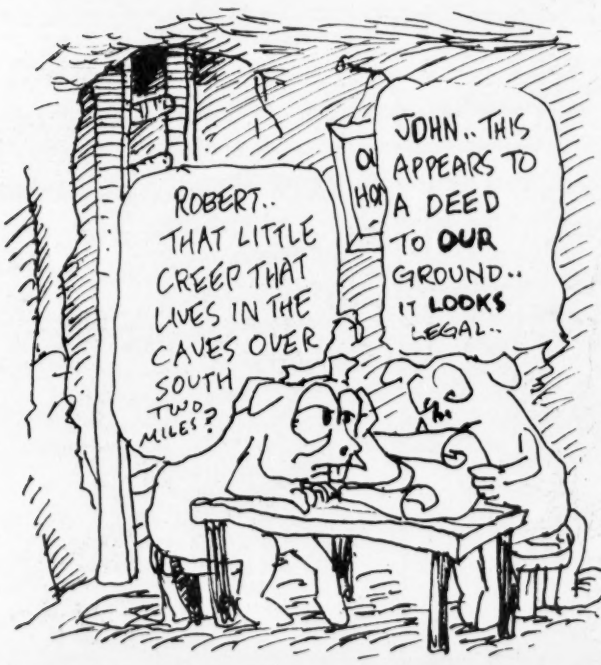
THAT'S IT! NOW I CAN START CRACKING THIS ROCK!!

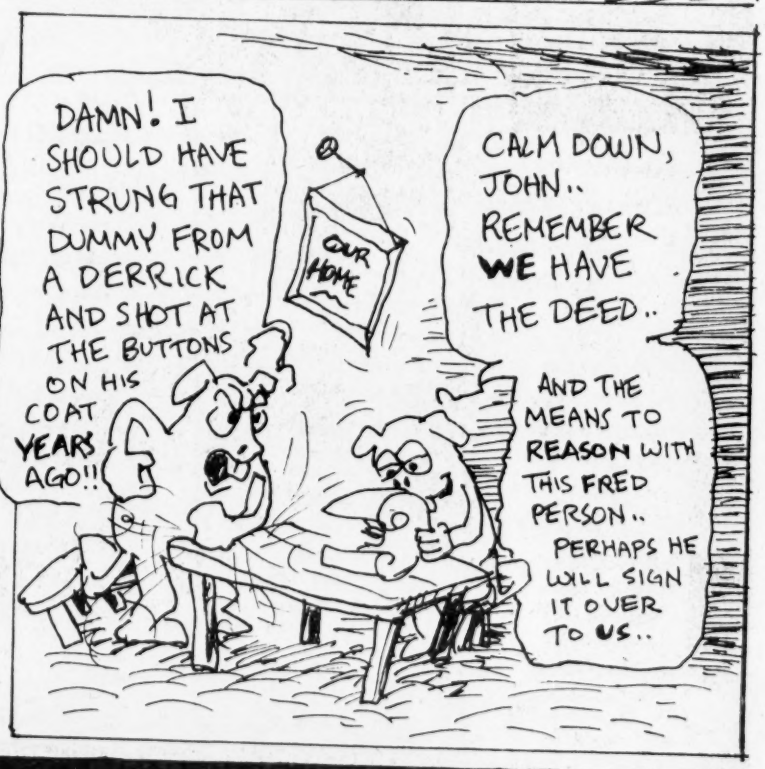
I'VE BEEN WORKING ON THE RAILROAD

ALL THE LIVE LONG DAY

CHRIST ON A BROOMSTICK..

THE DEED! I HAVE TO FIND THAT DEED!!
I COULDN'T HAVE LOST THAT DEED! IT'S MY LAST CHANCE!!
WHAT DOES IT SAY, MARTHA.. YOU CAN READ...
SOMESORT OF CLAIM.. "MARS BELONGS TO FRED.." IT'S SIGNED BY ROBERT..


ROBERT.. THAT LITTLE CREEP THAT LIVES IN THE CAVES OVER SOUTH TWO MILES?
JOHN.. THIS APPEARS TO A DEED TO OUR GROUND.. IT LOOKS LEGAL..


DAMN! I SHOULD HAVE STRUNG THAT DUMMY FROM A DERRICK AND SHOT AT THE BUTTONS ON HIS COAT YEARS AGO!!
OUR HOME
CALM DOWN, JOHN.. REMEMBER WE HAVE THE DEED..
AND THE MEANS TO REASON WITH THIS FRED PERSON.. PERHAPS HE WILL SIGN IT OVER TO US..

THE PLOT SICKENS
WE ARE IN THE RIGHT STAR SYSTEM, ELWOOD..
BUT THIS DOESN'T LOOK LIKE THE RIGHT PLANET!!
LET'S ASK THAT ALIEN WHERE WE ARE..
HOW COULD I HAVE LOST IT..?

to be continued . . .

NEW CROPS

ROSEMARY MENNINGER TALKING WITH RICHARD FELGER

The world is running out of water. In many desert areas, groundwater levels have dropped so low that the end of irrigation is already in sight. This means great reductions in the world food supply. How will agriculture compensate for the loss?

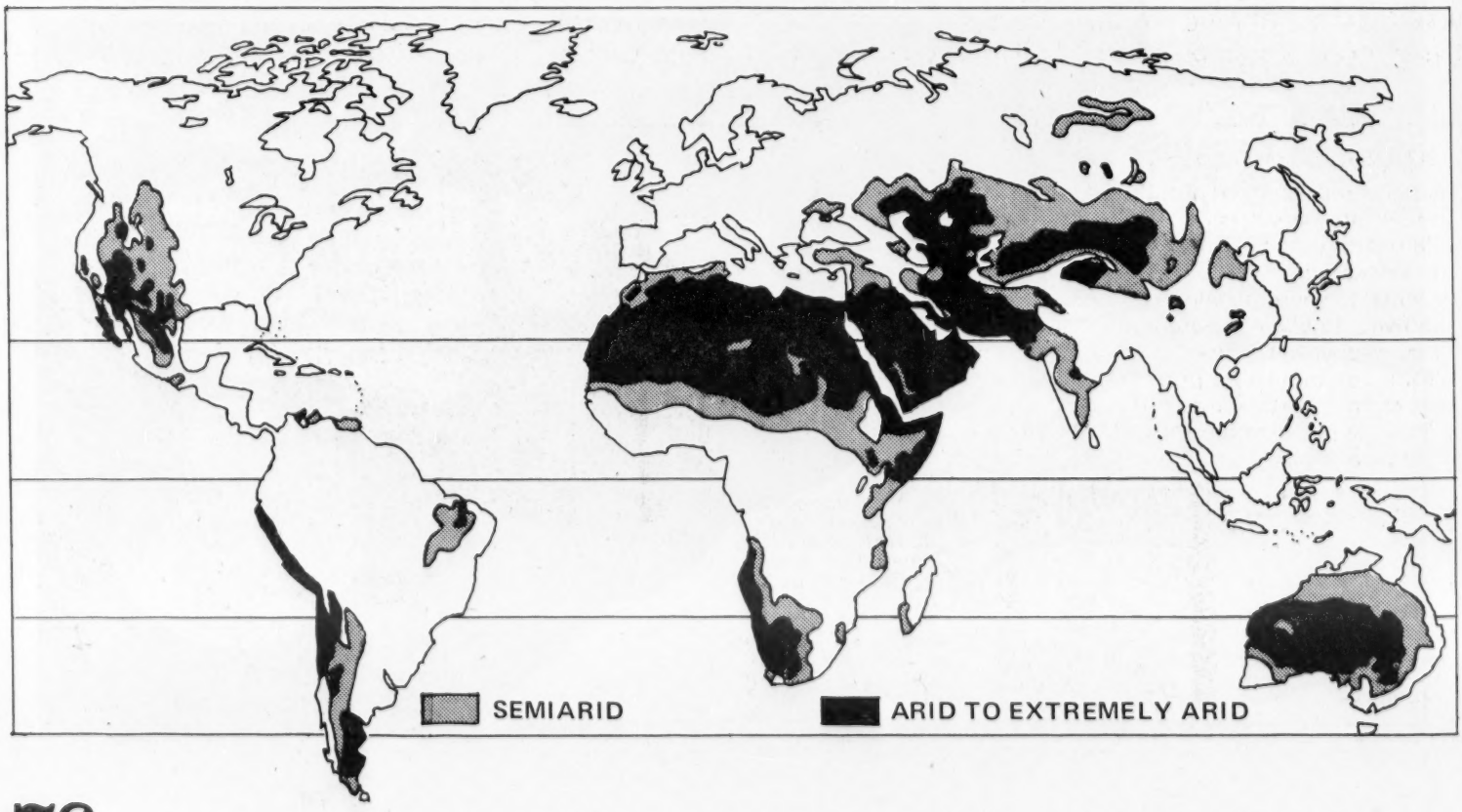
The answer lies at the very root of the problem — the crops. Only seven major crops feed the majority of the world's people — wheat, maize, rice, beans, soybeans, barley and the common potato. The remaining significant crops number less than several dozen. Recent research indicates that 30,000 edible species exist in the flora of the earth; many of these are native to arid/semi-arid regions and could be developed into dry-land crops.

Throughout modern times the role of the desert farmer has been to change his environment to meet the needs of major crops. Richard Felger, who is head research scientist at the Arizona-Sonora Desert Museum near Tucson, predicts that without water farmers will realize that it's easier and more environmentally sound to change the crops to suit the environment.

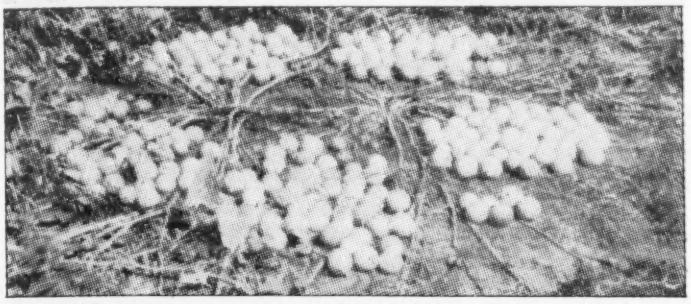
"There has not been one major crop developed by our civilization," says Felger. "All major crops cultivated today were developed by so-called primitive peoples. I think we're not trying."

Felger is trying. For one of his projects he has spent innumerable hours in the desert sun counting the pods on mesquite trees. Various southwest Indians have harvested mesquite pods in enormous quantities, storing them in special graineries and grinding them into flour for beverages and bread-like cake. Felger found mesquite to be a very productive plant, which yields a seed as much as 50% higher in protein than soybeans. "It would be environmentally and economically costly to grow soybeans in the desert," says Felger, "but not to grow mesquite." The plant is relatively independent of short-term drought because of deep taproots which penetrate as deep as 60 feet and more to reach groundwater. Overgrazing and seed dissemination by livestock have contributed to the increase and spread of mesquite in modern times. Felger points out that almost all of the money and energy put into mesquite has been expended upon attempted erradication and control, not on research for utilization as a food crop, which, as it turns out, is more feasible.

"With all the new pesticides, there are no fewer pests. The game is not being won, it's only being postponed. I think agriculture is possible without pesticides, but it has to be pretty damn sophisticated, or else it has to be more generous." —*Felger*



Don Ryan



Harvesting these two buffalo gourd plants growing wild near Snyder, Texas, yielded 1.3 kg of dry seed, despite arid conditions, lack of care, and lack of agronomic improvement.

One half of a 3 year-old buffalo gourd root. This specimen weighed 145 kg. Although this was produced by a plant growing under extremely arid conditions, the 70 kg of starch it contains is equivalent to the amount produced by a score of potato plants grown under good conditions.

BUFFALO GOURD *(Cucurbita foctidissiona)*

A perennial root crop, buffalo gourd may become the first major new crop. The root produces a staggering quantity of starch applicable to industrail use, and the edible seed is oil-rich. Buffalo gourd is very suitable to interior parts of California and would probably not require irrigation. The only problem is that once it's planted it's hard to get rid of, which may make farmers somewhat hesitant to commit their fields before the crop is proven economically.

"What I'm interested in, "says Felger, "is the agricultural potential of the world in an agro-ecosystem sense. Every vegetated part of the world has vegetative species that one time served the people who lived there.

Felger is using the Sonoran Desert as his model. Extending through southeastern California, western Arizona and northern Mexico, the Sonoran will begin to run out of water within this decade. Much of the irrigation of this region depends upon limited supplies of fossil groundwater mined from the depths of Pleistocene layers 30 - 40,000 years old. Around Tucson these underground sources are rapidly being depleted and cannot be renewed.

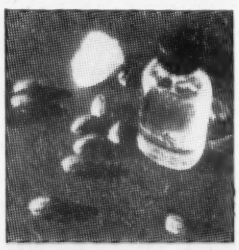
The plants of the Sonoran Desert are adapted by nature to the harsh conditions. Some are drought evaders; they can halt their growth, reduce their mass and wait for rain. Others are called drought resisters. They take in water greedily when it is available and hold it as a reservoir to draw upon later. The quick-lived desert ephemerals neither evade nor resist drought but completely escape it by withering and vanishing, leaving only their seeds to survive the long dry periods. Many desert plants put much of their energy into reproductive effort and seed production, yielding seeds which are small but energy-packed. Local Indians relied on high protein and/or oil-rich seed as major food resources and on carbohydrate-rich fruit, pods and tubers.

In searching out potential crops from the Sonoran Desert, Felger starts with the Indians. What indigenous plants did the indigenous people eat? Unfortunately this is not common knowledge but largely part of oral history, and it is dying out faster than it can be recorded. The long hours spent talking to old Indian people were as spiritual to Felger as the hours counting mesquite pods. From them a general pattern emerged. "Seeds and fruit are edible directly," he learned. "Vegetative parts and foliage are often toxic and used for medicine. All our medicines are toxins used in small quantities."

Much of Felger's information comes from the Seri Indians, a hunting-gathering-seafaring people of the Sonoran Desert, who subsisted until recent times on sea turtles, fish, land animals and desert plants. Occupying land too arid for agriculture, the Seri ate seeds and other parts of various root perennials, columnar cacti, halophytes such as seagrasses and leguminous trees, and shrublike mesquite, ironwood and the Palo Verdes. "If you use something for food for

JOJOBA *(Simmondsia chinensis)*

A plant much talked about in the Southwest for its crop potential, it appears as a dense scruffy bush. The female plant produces numerous inch-long seeds. From these can be extracted a unique liquid wax, which is comparable in quality to sperm whale oil, one of the finest lubricants known. Jojoba has potential for use in high temperature motor lubricants, furniture wax, shampoo, chewing gum, cosmetics, penicillin, printing ink, varnishes, emulsifiers, linoleum, electrical insulation, and candles. Furthermore, it is an appetite depressant and the Indians claim it removes warts.



Jojoba seeds, oil, and the very hard wax that is obtained by hydrogenating jojoba oil.

Harvesting jojoba in a 10 year-old plantation at Bilat, Israel, This area receives about 230-mm annual rainfall, but without any irrigation some of the best plants yield 3 kg of fruit in a single harvest.

Don Ryan

thousands of years," Felger explains, "you have a pretty good idea that it's a good food source."

After learning what plants the Indians ate most, Felger picks out those that seem feasible for adaptation to modern agriculture. "If you look for just one crop, it may well fail," he remarks. "Look for diversity, and the chances are pretty good that you'll come up with something, especially if you consider utilizing different micro-climates and combining crops in a symbiotic manner."

A potential crop, or cultivar, must have certain qualifications if it is to be seriously considered.

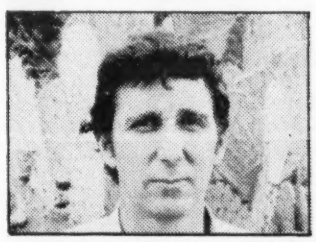
1. It must have a high productivity, which is measured in pounds-per-acre of edible, usable product.

2. It must have high nutritional value, either a high-quality protein or high oil content if oil seed is what one wants.

3. It must have good hybridization potential, with as many closely related species or sub-species as possible for use in gene selection.

4. There should be a realistic means of harvesting the crop.

Felger estimates that research and development of a new crop, including hybridization, costs about $2 million. That's relatively cheap; a new pesticide runs about $15 million. Without sound research and development, a new crop will probably fail. Felger cites the case of the tepary bean, a native bean domesticated at least 5,000 years ago in North America: "In the earlier part of this century, the USDA attempted to introduce the tepary bean into agriculture. It appeared to be successful, but attempts at marketing failed. Premature efforts to rapidly market new crops are usually disastrous. To immediately make it a commercial crop which farmers have to depend upon is unfair – why should they? There is sufficient research and development time allotted in industry, but not in this area of agriculture."



Richard Felger: "The fine minds of the times have not been turned toward agriculture; in fact they've been turned off. It's only after you're well established that you can come out of the closet and say 'I'm interested in agriculture,' and be academically accepted."

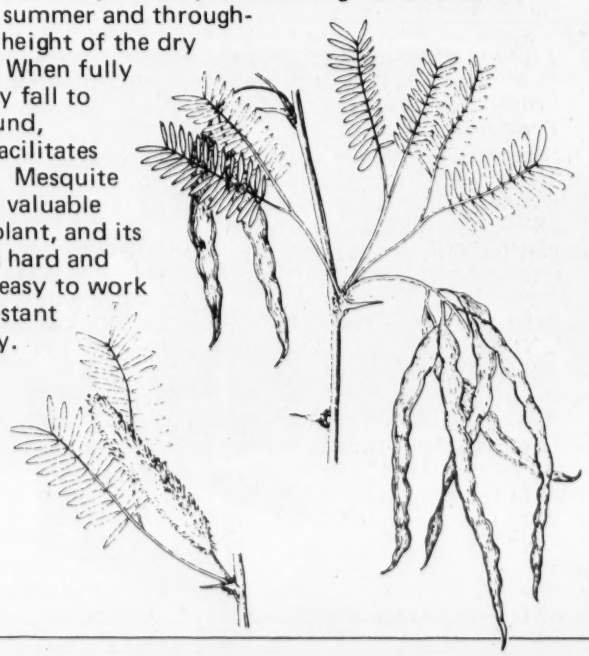
Acceptance of new crops may ultimately depend more on necessity, or at least on common sense than on acculturated taste. Many plants, because they are locally adapted, can be developed to require considerably less pesticide and much less water than existing crops. Locally adapted crops also make regional agriculture less dependent upon a centralized government and provide economic diversity and independence to that region. This is Felger's vision.

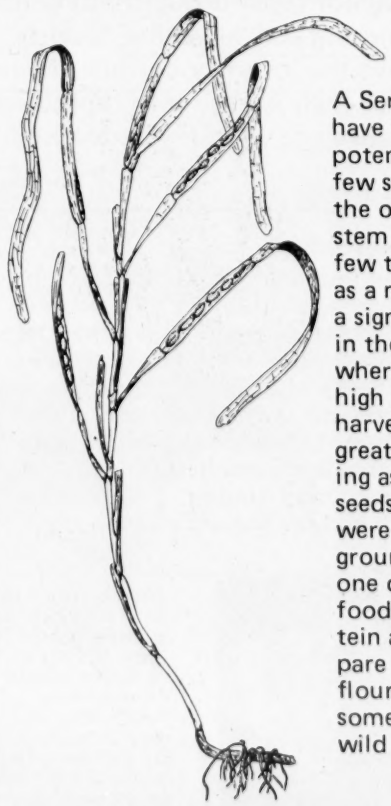
Our present system of agriculture breeds a loss of diversity, which occurs not only among species, but within species, until only one or two varieties of a crop dominate the scene. "The loss of local germ plasm has occurred at an alarming rate in the last few decades," says Felger. "To compensate, we must increase not only the number of species, or species richness, but the number of life forms." The only major crop which is not an annual is the potato. Annuals are plants that sprout, reproduce and die in the span of one year or less. Perennials continue their productivity over several or more years. While perennials are a highly practical life form for agriculture, it is the annual that rules our world.

The history of modern agriculture is a story of an ever narrowing and concentrated effort. In earlier times, crop diversity was commonplace, with many regions making use of locally adapted species. In the post-Columbian era wheat was brought to the New World, and maize, common bean and potato went to the Old World. Felger believes this post-Columbian exchange of crops was the factor that allowed population

MESQUITE
(Prosopis juliflora and others*)*

Mesquite could become a low-maintenance desert crop with high nutritional value because its seeds are energy-packed and the fruit pulp contains much additional food value. The pods are produced in great abundance in early summer and throughout the height of the dry season. When fully ripe they fall to the ground, which facilitates harvest. Mesquite is also a valuable honey plant, and its wood is hard and strong, easy to work and resistant to decay.





EELGRASS
(Zoestra marina)

A Seri Indian food which may have tremendous agricultural potential, it is one of the very few seed plants that grows in the ocean. While its leafy stem bases were used by a few temperate climate tribes as a minor vegetable, it was a significant food plant only in the Gulf of California where it yields an unusually high productivity. The Seri harvested the seed from the great masses of eelgrass drifting ashore each spring. The seeds, about 3 mm. in length, were parched, winnowed and ground into a flour that was one of the more important foods of the Seri. The protein and starch content compare favorably with other flours, and the mild flavor somewhat resembles that of wild rice.

"The agricultural potentials of the world have scarcely been tapped. For instance, there is a considerable amount of research going on with seagrasses. But trying to pinpoint their potential productivity is difficult because you're working underwater counting seed." —*Felger*

to increase in modern times because the agricultural repertoire of the world was more than doubled.

For the next few hundred years there was cheap energy (labor) and sufficient water to allow for the cultivation of a small number of major crops the world wide. When agriculture became mechanized, in the late 19th and early 20th Centuries, everything centered on the major crops. Machinery was not devised to handle small seeded plants. The productivity of indigenous species was no longer considered important. Agricultural thinking and research became centered in the temperate climates, with the result that European agriculture was practiced the world over.

In the mid-20th Century, the Rockefeller-funded Green Revolution brought high-yield agricultural technology to the Third World. In Felger's opinion, "The Green Revolution has brought along a loss of local and diversified germ plasm which has led to environmentally unstable situations. Some of the Green Revolution research has been very important, but it is well known that some of the inherent drawbacks of monoculture are that it is not consistent with the continuation of life."

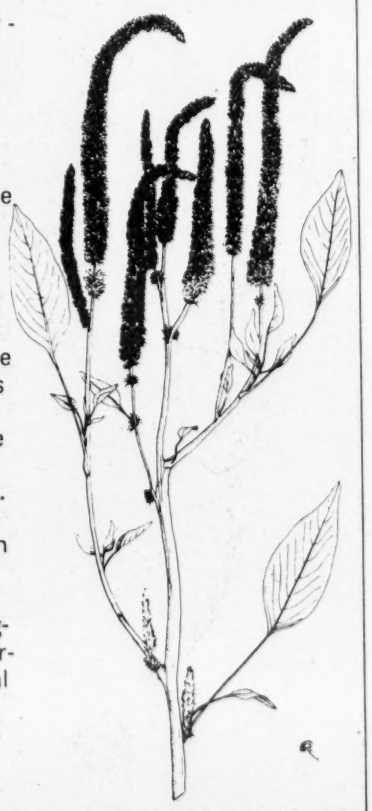
At present the strain of rising population upon our water and energy supplies creates a problem that even the high yielding "super-crops" cannot solve. Mexico, whose population will double in less than twenty years, is already importing large quantities of maize (corn) and, with dwindling water supplies in the arid regions it faces a hungry future.

But the return of agricultural diversity may be just around the corner. The intermediate technology now being developed by the burgeoning herb industry to accomodate small seeded plants will soon make efficient harvesting and processing of many new crops possible.

"We're not going to go back to non-mechanized agriculture," says Felger, "there's no need for it. Meanwhile the jungles of South America are being clear-cut for the white-faced cow. There are wonderful, spiritual things growing in each part of the world — why don't we look at them?" ■

AMARANTHS *(Amaranthus - various species)*

Domesticated in North America thousands of years ago because it produces a huge amount of extremely nutritious seed, Amaranths are the only plants outside the grass family that have earned the name "grain." They bear a large head of tiny seeds with a productivity as high as or exceeding that of maize. The cultivation of amaranths was eventually prohibited by Spanish colonial law because of a minor ceremonial use the Aztecs had for the plant. The amaranth seed was mixed with sacrificial human blood and served like caviar at banquet tables. **Organic Gardening and Farming Magazine** is trying to renew interest in the plant as a potential crop by sponsoring a backyard amaranth research program among its readership.



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"Nutritionally Significant New Crops for Arid Lands: A Model from The Sonoran Desert," by Richard Felger, from *Priorities in Child Nutrition, Vol. II*, by Jean Mayer and J.T. Dwyer, UNICEF, 1975, reprinted by Harvard University School of Public Health.

"Arizona's First Farmers," by Carle Hodge, *Arizona Highways*, November 1976.

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Deserts of the World, An Appraisal of Research into their Physical and Biological Environments, edited by William G. McGinnies, Bram J. Goldman, and Patricia Paylore. University of Arizona Press, Tucson. 1969, 788 p. (A U.S. contribution to the International Hydrological Decade.) $18.00.

Food, Fiber, and the Arid Lands, edited by William G. McGinnies, Gram J. Goldman, and Patricia Paylore. University of Arizona Press, Tucson, 1971, 437 p. $24.00.

Desertification: A World Bibliography. Prepared for the 23rd International Geographical Congress, Moscow, 1976, Pre-Conference Meeting of the IGU Working Group on Desertification, Desert Research Institute, Ashkhabad, Turkman, SSR. Compiled and edited by Patricia Paylore. Office of Arid Lands Studies, University of Arizona, Tucson. 1976, 644 p. (1756 citations) $20.00 - $2.00 postage; $25.00 for foreign orders shipped air parcel post.

World Desertification: Cause and Effect. A Literature Review and Annotated Bibliography, by Wade C. Sherbrooke and Patricia Paylore. 1973, 168 p. Out-of-print. Available only through NTIS as document No. PB-228 100. $5.00.

Jojoba: A Wax-Producing Shrub of the Sonoran Desert. A Literature Review and Annotated Bibliography, by Wade C. Sherbrooke and E.F. Haase. 1974, 141 p. $10.

Guayule: A Rubber-Producing Shrub for Arid and Semiarid Regions. Historical Review by William G. McGinnies, Bibliography with Selected Annotations by Edward F. Hasse, 1975, 267 p. $10.

Jojoba and its Uses, An International Conference, University of Arizona, Tucson, June, 1972. Edward F. Haase and William G. McGinnies, Technical Editors. Office of Arid Lands Studies, University of Arizona, Tucson/U.S. Office of Economic Opportunity. 81 p. $5.00.

An International Conference on the Utilization of Guayule, November 1975. Sponsored by the University of Arizona, Office of Arid Lands Studies, University of Arizona, Tucson. 1976, 176 p. $10.00.

Desertification: Process, Problems, Perspectives. Papers presented during a 14-week seminar series. November 1975 - April 1976. Sponsored by US/AID and the University of Arizona 211(d) Arid/Semiarid Natural Resources Program. Office of Arid Lands Studies, University of Arizona, Tucson, 1976, 125 p. $20.00.

Jojoba Happenings. Annual Subscription, beginning 1977, $5.00 (4 issues). Back issues, No. 1, 1972 - to date, $1.50 each.

Arid Lands Information in U.S. Government-Sponsored Indexing Tools: What? Where? When? How? by Patricia Paylore. In *Food, Fiber, and the Arid Lands* (q. v.), p. 407-420. University of Arizona Press, Tucson, 1971. Photocopy available. $2.00.

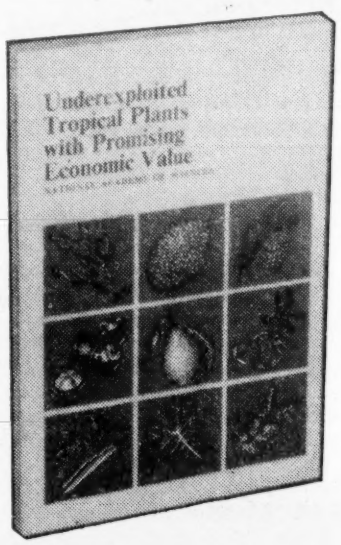
Also:

Good & Wild, newsletter from International Association of Lesser Known Foods, Box 599, Lynwood, CA, 90262. $7.50 per year includes membership.

MORE BOOKS ON NEW CROPS

by Rosemary Menninger

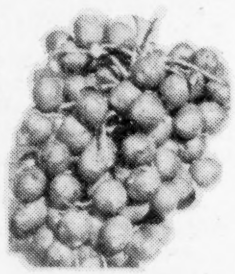
Underexploited Tropical Plants With Promising Economic Value



(Order No. PB 251656)
National Academy of Sciences
1975; 186 pp.
$7.50 postpaid
from:
NTIS
5285 Port Royal Rd.
Springfield, VA 22161

The modern classic of new crops research. Thirty-six plants are discussed: their crop potential, limitations and specific research needs. This book has its own fan club — people who go on to subscribe to "Jojoba Happenings" and the "Winged Bean Flyer," two newsletters on crop research. A recent "underexploited" pot luck dinner held here in Marin County featured steamed red leaf amaranth, fried burdock root, fresh loquats, and marinated chayote as the most popular dishes.

PEJIBAYE



Other than the coconut, date, and African oil palm, few plants of the family Palmae have been widely exploited. Many could become useful sources of oil and food. A notable example is pejibaye, or peach palm. It could become an important commercial crop throughout the humid tropics. Probably the most balanced of all tropical foods, its fruit contains carbohydrates, protein, oil, minerals, and vitamins.

Although favorably mentioned by Spanish writers centuries ago, pejibaye today is little known outside Central America and northern South America. It is a palm with many spiny trunks emerging from a common root stock. The fruit, 2-6 cm long, is borne in bunches weighing up to 12.5 kg and consisting of up to 300 fruits. There may be as much as 13 bunches on a single trunk and, under ideal conditions, two crops are harvested per year. The fruit is a starchy mesocarp surrounding a seed. It is not sweet; its flavor and texture are reminiscent of chestnuts. Pejibaye fruit has twice the protein content of banana and can provide more carbohydrate and protein per hectare than maize.

Jojoba Growers Advisor

$1.00 /yr. (12 issues)

from:
Jojoba Information Center
855 Linden Avenue
Carpenteria, CA 93013

•

Jojoba Happenings

$5.00 /yr. (for current calendar year)
3-4 issues

from:
Jojoba Happenings
845 N. Park Avenue
Tucson, AZ 85719

Newsletters of research in jojoba cultivation and utilization.

•

Winged Bean Flyer

Single copies available on request; published twice yearly.

from:
Dept. of Agronomy
University of Illinois
Urbana, IL 61801

A newsletter of research on the tropical winged bean.

•

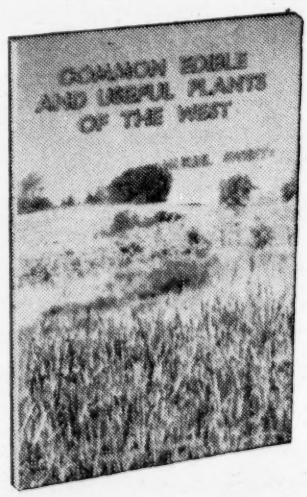
Making Aquatic Weeds Useful

(Some Perspectives for Developing Countries)
No. PB265161
1976; 175 pp.
$7.50 postpaid

from:
NTIS
5285 Port Royal Rd.
Springfield, VA 22161

Includes uses of water plants for methane production and for extraction of heavy metals from the water.

Common Edible and Useful Plants of the West



Muriel Sweet
1962; 63 pp.
$2.50 postpaid

from:
Naturegraph
P.O. Box 1075
Happy Camp, CA 96039
or Whole Earth

For the price, this is a good introduction to edibles of the western U.S. Look up a favorite weed and learn of its uses by native American peoples. Surprisingly, this little book covers a wider variety of Indian food plants than **How Indians Use Wild Plants for Food, Medicine and Crafts** *(Dover, 1974).*

More Water for Arid Lands

(Promising Technologies and Research Opportunities)
No. PB239472
1974; 153 pp.
$6.75 postpaid

from:
NTIS
5285 Port Royal Rd.
Springfield, VA 22161

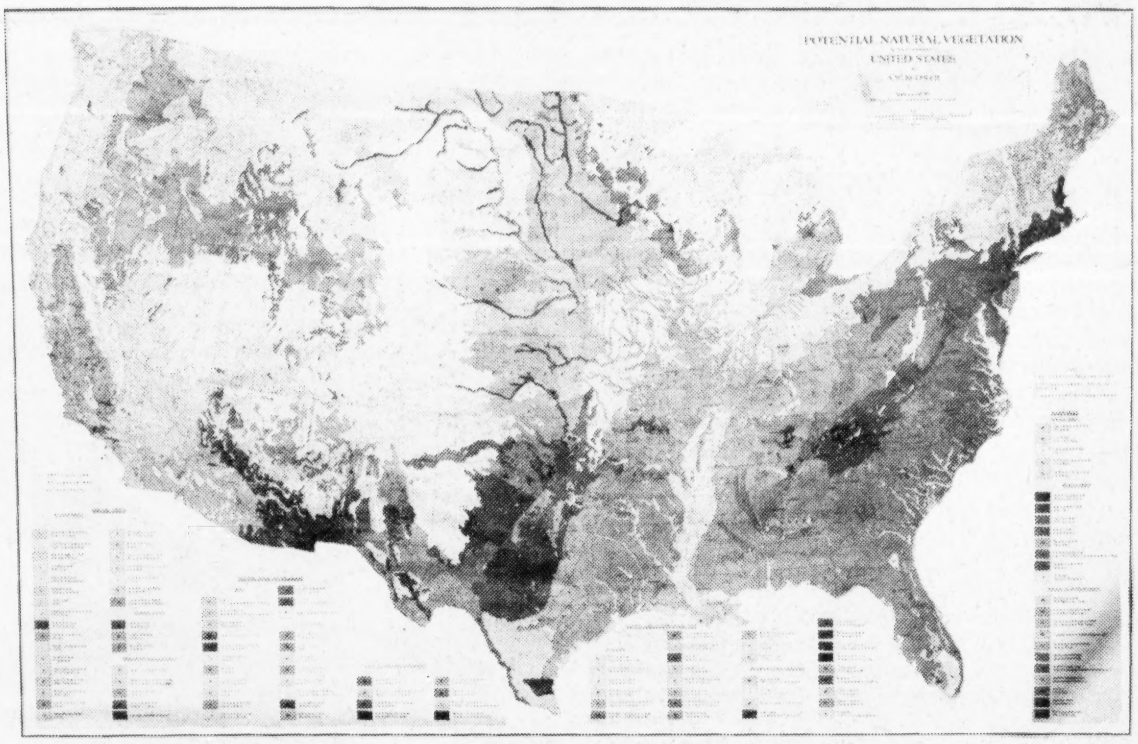
Various techniques of saving water: including roof and hillside catchments, rainwater harvesting, saline water irrigation and other water conservation methods employed in deserts around the world.

Protective covering of molded, lightweight, concrete slabs cut evaporation by an estimated 80 percent recently in full-scale tests on two reservoirs in Ovamboland, South-West Africa. Engineers cover reservoirs with 24-in^2, 2-in thick floating slabs of polystyrene, sand, and concrete. Exposed surface of each slab is painted white to reflect the intense sun rays, which hasten evaporation.

Potential Natural Vegetation of the United States

When you are despondent over the works of humans, hie yourself to the forested states and tall-grass prairies of this map of never-land, a USA gone native. It's not as pretty as our "Biogeographical Provinces Map" but it's considerably bigger and far more detailed and very much in the same spirit. Spirit of place.

—SB



Potential Natural Vegetation of the Conterminous United States
A. W. Kuchler
revised edition, 1975
$14.50 postpaid
from:
American Geographical Society
Broadway at 156th St.
New York, NY 10032

My Garden Companion

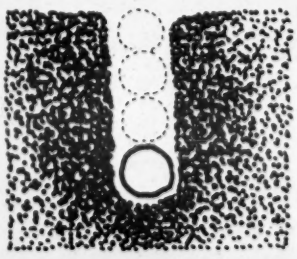
With so many gardening books around, a new one has to be deeper in the scientific sense or broader in technique. This one has a bit of both. Maybe because it's written for children it's better than most books for adults. I learned the answers to some things I've wondered about for years. For instance, what do ants do — good and bad — in a garden? (They're scavengers, keeping things clean but also eating occasional roots and seeds.) This is a gardener's almanac; it even tells how to gear your crops for a harvest party.

—Rosemary Menninger.

My Garden Companion
(A Complete Guide for the Beginner)
Jamie Jobb
1977; 336 pp.
$4.95 postpaid

from:
Sierra Club Books
530 Bush Street
San Francisco, CA 94108
or Whole Earth

Often, plants don't come up in a beginner's garden because the seeds are planted either too deep or too shallow. Seed packs usually tell how deep the seed needs to be. But if you don't have that information, you can still tell how deep to plant most seeds. Here's the rule to remember:



Plant each seed so that three more seeds exactly the same size could be placed on top of it. You'll need to guess more for odd-shaped seeds (watermelon, squash, bean, pumpkin.)

Raising Small Meat Animals

If your average country vet doesn't know too much about sick rabbits and chickens, that's because he spends most of his time doctoring horses and cattle. Dr. Giammattei helps fill the void with this excellent book. There are 39 pages of diagnostic keys for various animal diseases, plus instructions on how to doctor your own flocks. Details on nutrition, housing, breeding, management and butchering are equally well presented. Wonderfully illustrated and worth the money.

—Richard Nilsen
[Suggested by the author]

Raising Small Meat Animals
Victor M. Giammattei
1976; 433 pp.
$10.25 postpaid

from:
The Interstate Printers and Publishers, Inc.
19-27 N. Jackson Street
Danville, IL 61832
or Whole Earth

Debeak only when you see one or several birds under constant attack to the point where they're left bleeding. You generally have plenty of time; your birds aren't going to turn into killers overnight. To debeak, use an ordinary pair of sharp side cutters (wire cutters), large fingernail clippers, or dog toenail clippers and clip the upper beak off squarely, about halfway from the tip to its base. This position is critical, because if you cut too close to the base you'll cause excessive bleeding and the bird will have a difficult time eating. After cutting off the upper beak, snip off just the very tip of the bottom.

Soft Technology

Nets
Grid Shells
Adaptable Architecture

New books from the Institute for Lightweight Structures (directed by Frei Otto) are always cause for rejoicing. I continue to marvel at the competence shown by these people; they are certainly the model for hard work and disciplined investigation. These books are done in the highly detailed beautifully executed manner [and with the detailed biological inspiration —SB] we have come to expect from Herr Otto and crew. (CATALOG, p. 105, EPILOG, p. 524.)

Nets *includes every kind of net you can think of, including anti-submarine nets and spiderwebs, with the theory, construction techniques, and architectural possibilities of nets. Otto's Montreal and Munich structures are shown in detail.* Grid Shells *explores the exciting potential of very thin stiff structures based upon the concept of dangling a net-like structure, locking it rigid, and then flipping it over for use as a building.* Adaptable Architecture *is a direct socially oriented discussion of non-monumental architecture that is able to change with the desires and needs of the people who must use it.*

The entire group of IL books will noticeably dent your savings account, as well as feed and inspire your mind. Your local library might go for the whole set.

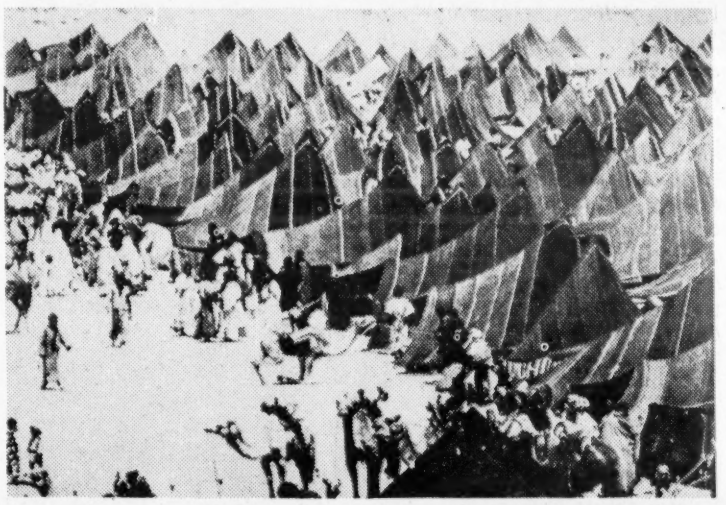
—J. Baldwin

Nets (IL8)
Klaus Bach, editor
1975; 430 pp.
(In English/German)
$29.00 postpaid

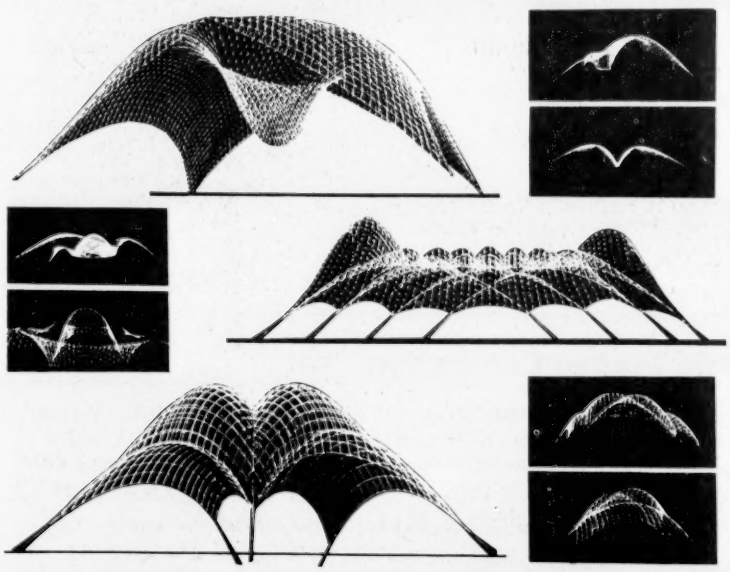
Grid Shells (IL10)
Jurgen Hennicke and Eda Schaur, editors
1974; 346 pp.
(In English/German/Japanese)
$20.50 postpaid

Adaptable Architecture (IL14)
Bernd Baier and Stefan Meyer-Miethke, editors
1975; 335 pp.
(In English/German)
$16.50 postpaid

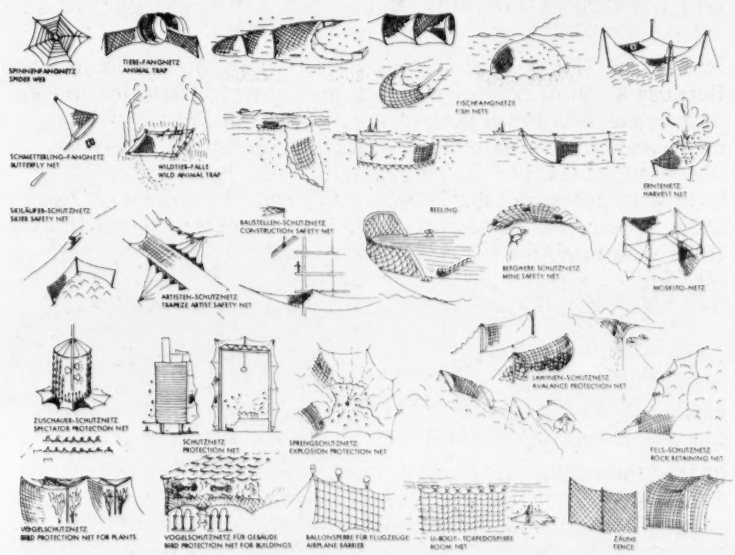
all from:
Wittenborn Art Books & Co.
1018 Madison Avenue
New York, NY 10021
or Whole Earth



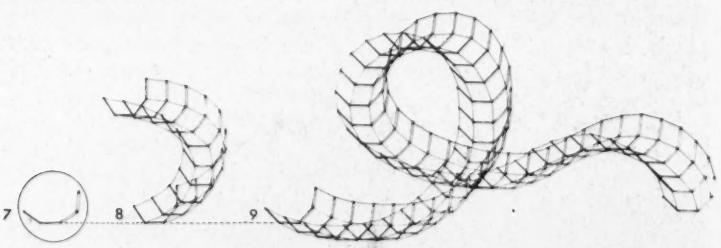
from Adaptable Architecture



from Grid Shells



from Nets



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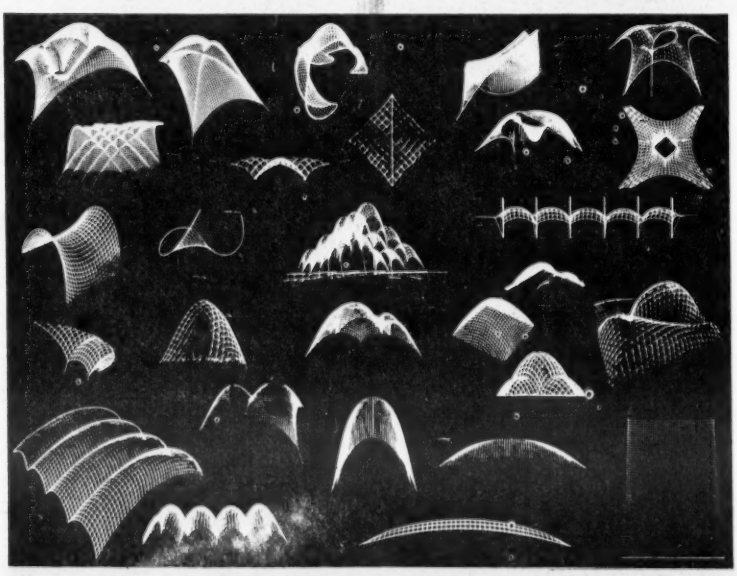
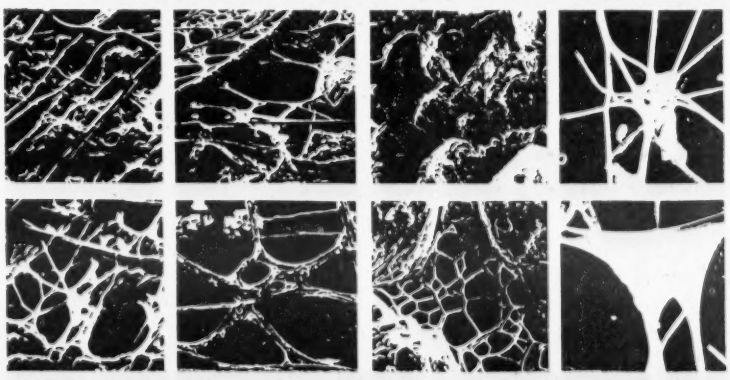


from Grid Shells



from Nets

Home Is Where You Park It

What's it like to live only in an "RV" (recreational vehicle)? Thousands of people do these days. Some are retired, some are "boomers" who work here and there as they go. None have a home base. Their travel trailer or motor home (not mobile home) is IT. So what about mail, medical help, taxes, parking, schools for the kids, attack, banking, credit, appliance warranties, driver's license and insurance? What kind of RV is best for you? How much does living this way cost? Kay Peterson answers all the above questions and about 200 more as she describes life on the road. Having done this bit myself, I can vouch that her advice is pretty good. If you're thinking of living this way, giving her a listen will save you many hassles.

—J. Baldwin

Home Is Where You Park It
(A Guide to RV Living as a Life-Style)
Kay Peterson
1977; 192 pp.
$5.95 postpaid
from:
Follett Publishing Company
1010 W. Washington Blvd.
Chicago, IL 60607
or Whole Earth

The total expenditure at the end of our first year of living in an RV was slightly more than half as much as it had been in 1969, when we lived in a house. Why does it cost so much less to live in an RV than it did to live in a conventional house? . . .

The most noticeable differences in my own records occur in clothes, home repairs, and major purchases. We bought so many more things when we lived in a house! . . .

Another savings is in clothes. Because of the limited closet space in an RV, we buy fewer clothes now. . . .

Day-to-day living costs are much less when you live in an RV. Because a trailer occupies about one-tenth the interior space of a house, heating and electricity cost less. We use a small portable electric heater to supplement our propane furnace because we've found it is cheaper to heat with electricity than with propane gas. The cost of propane has soared since the energy crisis started in 1973. It is expected to continue to rise along with the cost of gasoline, electricity, and fuel oil. But one of the advantages of living in an RV is that you have wheels under your home. You don't have to stay in cold climates!

•

Some people make their goal the attainment of an executive position. This attitude is not compatible with booming because supervisory positions are a reward given to permanent employees. Some people need the security that comes with a steady job and a predetermined paycheck. Boomers cannot have those guarantees, nor can they count on a pension.

So boomers have to be the type of people who find security in their abilities and talents. And they must be able to sell those abilities to new employers. In order to do that, they must truly believe in themselves. They must be people who enjoy challenges and who aren't afraid to take chances. It takes more than just a love of travel to make a boomer; it takes a willingness to experience whatever adventures life has to offer.

•

Since it is difficult to get credit cards once you become a transient, be sure to apply for the credit you want *before* you give up your permanent residence. Even if you've always been dead set against using credit, you may change your mind after you start full-timing.

Pure cotton and wool comforter

Cheaper than down, less allergenic, and cuddlier, give me a good wool comforter. It's better than a blanket and better than having the furnace roaring all night.

—SB

Wool Comforter
80" X 60"
$55.50 postpaid

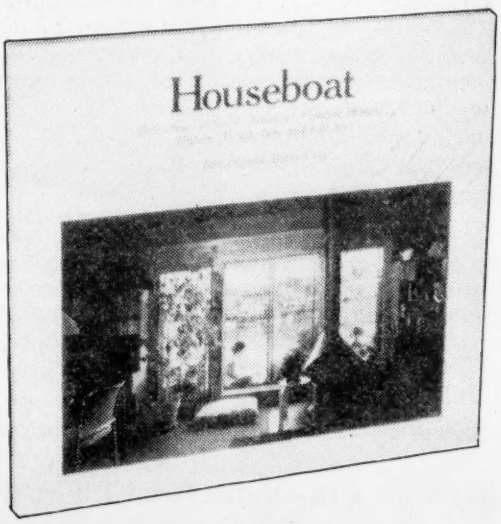
from:
Catalina Versand
Box 34 - 115
Washington, D.C. 20034

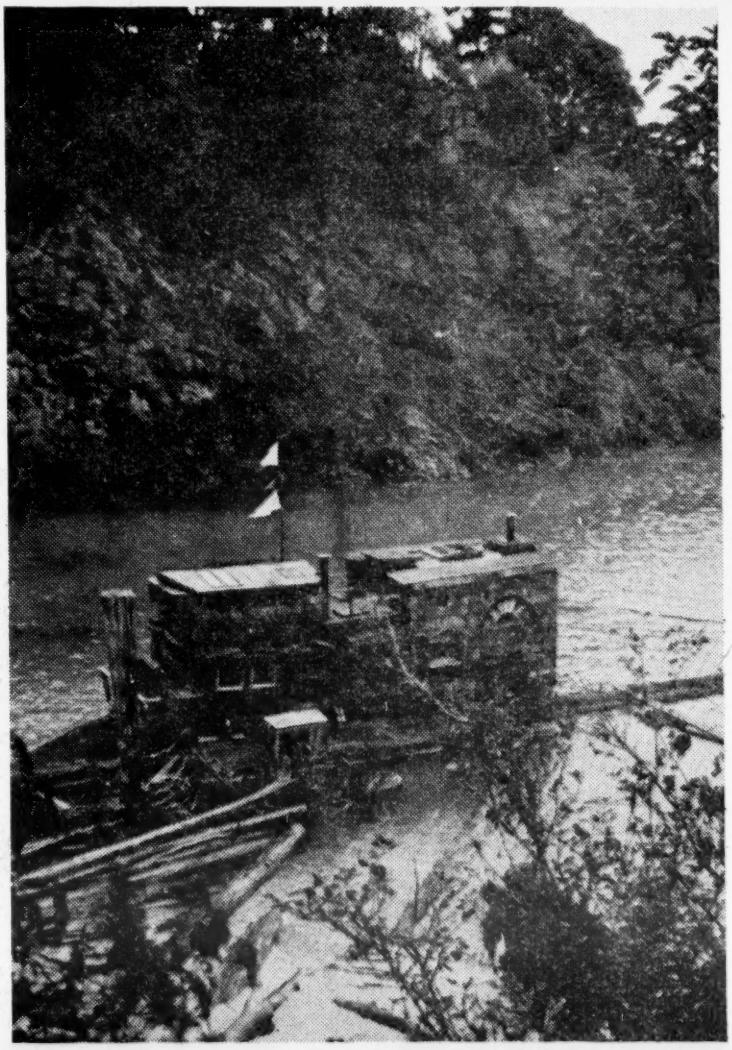
Houseboat

The fluidity (and difficulty leading to attentiveness) of a water environment seems to encourage fluidity of house design and life design for water dwellers. I've been waiting years for a good book on the subject. This one partially satisfies the want with a bonus of careful history and evocative color photos, but no how-to. The book I want now is a years-of-research, world-wide, anthropologically and engineeringly serious VOLUME. Get on it.

—SB

Houseboat
Ben Dennis and Betsy Case
1977; 128 pp.
$9.95 postpaid
from:
Smuggler's Cover Publishing
107 W. John St.
Seattle, WA 98119
or Whole Earth

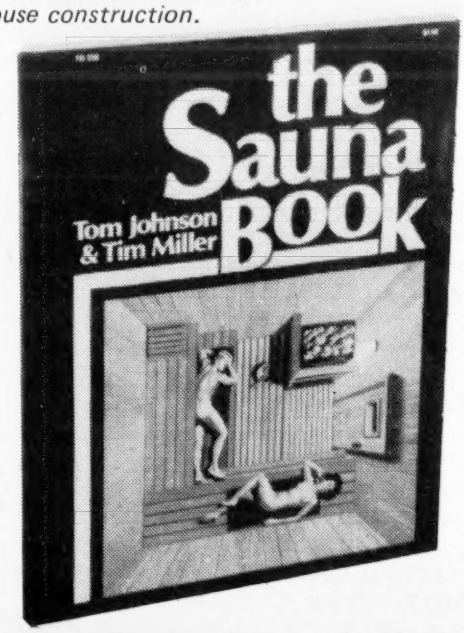




The Sauna Book

I'm not a bit sure whether increasing use of saunas is a sign of advanced civilization or advanced decadence, but I am amazed it's taken this long for a complete book on saunas to show up. Everything needed is here — how to enjoy, how to build, unusual sauna lore, and detailed review and access on manufacturers. A nice job. One tip: if you're building a house and sauna, build the sauna first and you'll have a nice place to relax from house construction.

—SB



The Sauna Book
Tom Johnson and Tim Miller
1977; 193 pp.
$7.95 postpaid
from:
Harper & Row
Keystone Industrial Park
Scranton, PA 18512
or Whole Earth

The Best Cheap Stove You Can Get

We spent a long time trying to figure out how you could get an electric or gas sauna stove without spending much money. For a while we played with a homemade stove utilizing the heating element from the oven of an abandoned electric stove but never quite got the kinks worked out of it. Then Gerhard Zuther, who lives right in the neighborhood, showed us his. Friends, he has the answer.

Gerhard's stove is made from an old water heater. Water heaters are normally abandoned because the tank has a small leak, not because the heating unit (be it electric or gas) is faulty. This means that they are just fine for our purposes, since what we're after is something that will (a) heat and (b) hold stones.

To picture the stove, you only have to understand that a water heater is a tank set on top of a fire. The heater is insulated, which means that there is an inner tank, which holds the water, surrounded by a layer of insulation, all wrapped within a thin outer shell of metal.

To make a stove of it, you will need to remove the outer shell and the insulation. That will not be difficult to do. Then you will need to cut the top off the tank; actually, the tank is quite a bit larger than what is needed, so it makes sense to make the cut perhaps halfway up. Most water heaters hold 20 or 30 gallons; 10 gallons of volume will be plenty for your stones. At this point you will probably have to get some help, unless you have a cutting torch, but at any rate the cost should be low. Gerhard bought his gas water heater in a junkyard for $2.50, and the proprietor made the necessary cut for an additional two bucks.

Incidentally, contemporary water heaters are usually lined with fiberglass, but many old ones are not. You will want one that is not.

A flame needs oxygen for combustion in any gas-fired sauna heater. This is no exception. An air intake at ground level near the stove should do it. Gas heaters also have pilot lights; you will probably want to turn it off and light the stove each time with a match. There's no need to waste fuel on an appliance that isn't used every day.

•

Since we began research for this book, Kartiala has dropped the price of his heaters to a point where they are certainly competitive with the electric-powered makes. Finno's 25,000-BTU heater was listed at $469 (spring 1976 prices), and the 35,000-BTU model at $499. The company recommends that the former heater can be used in a stoveroom up to 5 by 8; the latter in a room up to 7 by 10. But remember, too, like the electric heaters, you will probably need an expert to hook up your fuel supply, and that might cost as much as $100 to $150. . . .

Kartiala is obviously interested in selling his stoves, and he has indicated to us that he might discount them as much as 30 percent, especially if he has no dealers in your region. The stove and rocks are set on the freight dock weighing 150 pounds. All prices are FOB Los Angeles.

FINNO COMPANY
15836 Lahey Street
Granada Hills, CA 91344
(213) 365-6902

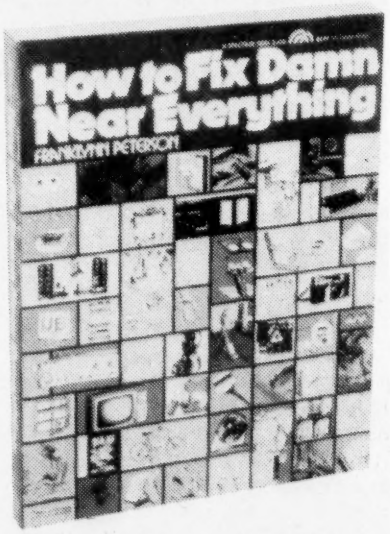
Lagniappe and General Observations

If you are considering a gas-fired heater, be sure to contact Finno Company. They are now at a competitive price position, and the design seems to be especially well thought out. The installation instructions for the heaters are the most informative and complete we've seen. Although the appearance of the document isn't as flashy as some, that doesn't matter. All the questions we could think of were answered — something all too rare in the sauna industry or any other.

How To Fix Damn Near Everything

It's pretty easy to find exceptions to that "everything," and you'd be correct in assuming that a book such as this one treats most categories with little more than a lick and a promise. But in an appliance-ridden household, that obvious lick might be all that's necessary to avoid aggravating dependence on repairpeople. Often, knowing where to kick the recalcitrant vacuum cleaner will keep it going for years.

—J. Baldwin



How To Fix Damn Near Everything
Franklyn Peterson
1977; 468 pp.
$8.95 postpaid
from:
Prentice-Hall, Inc.
Box 500
Englewood Cliffs, NJ 07632
or Whole Earth

Age begins creeping up on even the biggest component in your TV set, the picture tube itself. From hours and hours of bombardment by the tube electron gun, scum develops inside the tube, leading to loss of sharpness and overall grey tinges. Age also can lead to short circuits between internal wiring networks, and that generally causes excessive contrast, which even the contrast control cannot compensate for completely. The relatively inexpensive answer is a *picture tube booster*.

The picture tube booster generally fits like an extension cord between the socket of your picture tube and the plug that normally slips into that socket.

Underground Designs

We recently received a letter from Malcolm Wells: "Thanks largely to the wave of interest you generated last year with my 'Underground Architecture' article in the Fall '76 CQ, *we have had over 6,000 inquiries. At first we tried to answer them individually, but I soon decided to put all the information in a book."*

So here's Malcolm's book. It's a good one. Later on an expanded version will be coming from McGraw-Hill.

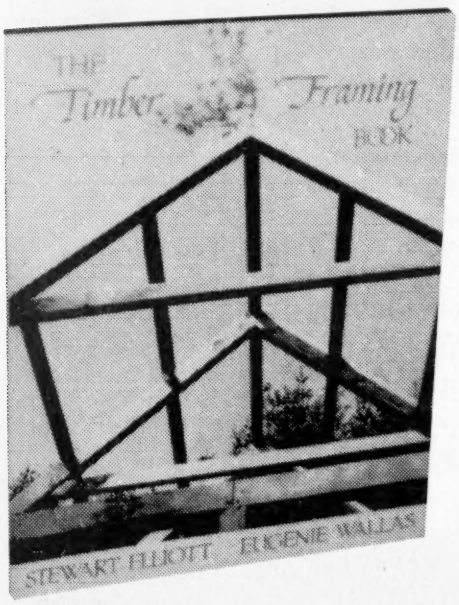
—J. Baldwin

Underground Designs
Malcolm Wells
1977; 87 pp.
$6.00 postpaid
from:
Malcolm Wells
Box 183
Cherry Hill, NJ 08002

The Timber Framing Book

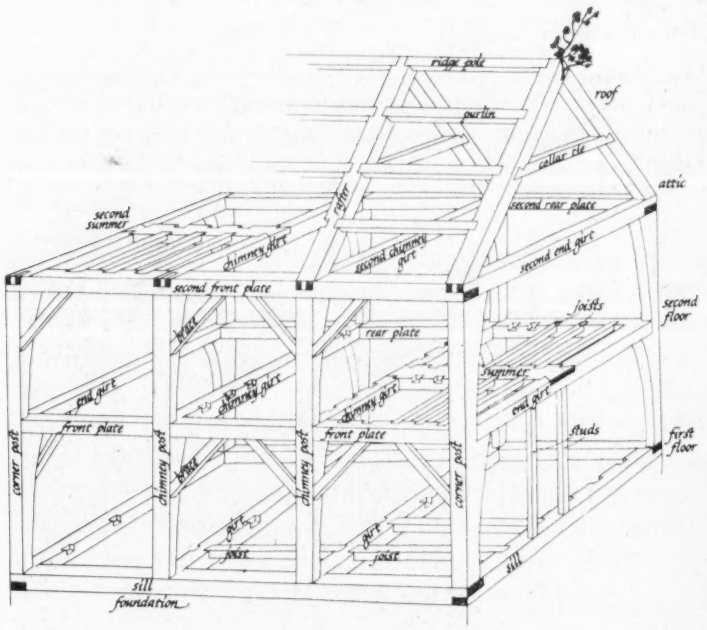
Timber framing is not the 2 X 4 bit, it's framing up with big stuff buttoned together with variously made joints such as mortise-and-tenon. It's a good way to make a building, and a good way to make the strong friendships that seem naturally to arise among those working together. . . timber work needs people power to erect the weighty parts. This book is extraordinarily good in every way. In fact, I can't recall ever seeing a book on any subject that was so easy to understand. The drawings by Linda Foss deserve special mention because after you see them, you really know how to get cuttin'. Last but not least, these fine people published the whole thing themselves, thus insuring that nothing got lost in the translation. And nothing did.

—J. Baldwin



The Timber Framing Book
Stewart Elliott and Eugenie Wallas
1977; 170 pp.
$9.95 postpaid
from:
Housesmiths Press
P.O. Box 416
York, ME 03909
or Whole Earth

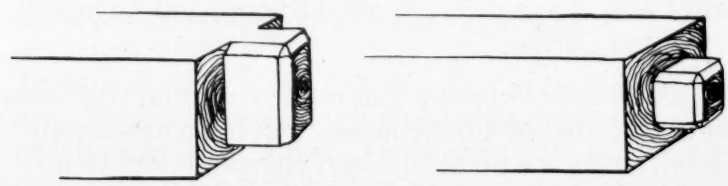
"All together girls ... Hup"



•

The final step for preparing any tenon to be inserted in a mortise is to champher, or shave off, the edges of the tenon. You should do this as a precautionary measure, since it is difficult to pull a joint apart once it is assembled. The tenon might not fit because of some small piece of wood left in the bottom of the mortise. It can be disheartening to see how much trouble one small piece of shaving, or a ragged edge can cause.

Corners have been "knocked off"
CHAMPHERED

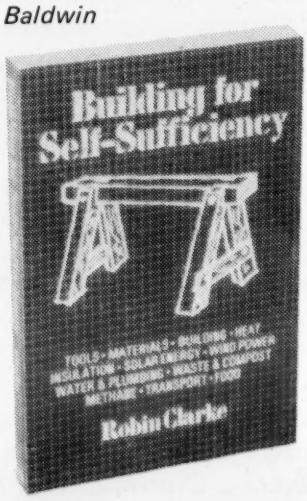


Building for Self-Sufficiency

Robin Clarke has been one of England's more noticeable "self-sufficiency" advocates. In 1973, he and friends commenced to build a self-sufficient commune complete with most of the ecologically acceptable attributes that one could hope for. As a commune, the attempt failed. As a learning bit, it seems to have been a success. He Tells All here in a droll British Wit manner that is at times painfully frank. Those of us who've tried such an experiment will see our own failures and triumphs again. Those who haven't taken the plunge will find plenty to think about. For anyone, a personal account such as this one makes a lot more interesting reading than the usual "observations" of academic visitors to the scene.

—J. Baldwin

Building for Self-Sufficiency
(Tools, Materials, Building, Heat, Insulation, Solar Energy, Wind Power, Water & Plumbing, Waste & Compost, Methane, Transport, Food)
Robin Clarke
1976; 296 pp.
$5.95 postpaid
from:
Universe Books
381 Park Ave. South
New York, NY 10016
or Whole Earth



What form wind power will return in is not yet clear. I'm pretty sure that those 1,000 kW monsters are far too big for happiness. On the other hand, much as many people would like it, I don't really relish the day when every home has its own windmill perched on the roof top. TV masts are bad enough, and anyway I suspect that that scale is really too small to be truly beautiful — at least as far as windmills are concerned. Perhaps something around 25-50 kW will prove the best, supplying power for a road or street or hamlet. Meanwhile there are plenty of people about who would like to build their own.

•

Never join a community because you want to live in a community, or think you do. Do so only if you discover a group of people, or even one or two, with whom you positively think a shared life would be a turn for the better. I've met a good few such people — and some of them were at Eithin. Some of them visited Eithin but left before they decided to join. Those people are the only reason for living in a community. The economic ones, or whatever other justifications you care to discover for yourself, are secondary. They are the spin-offs, the trade-ins which pay you their interest for sharing your life.

But never make the mistake of thinking them to be the reason. All such communities are bound to fail.

And, second, how do you know whether you really want to live in a community with someone? I'm quite sure there's no easy answer — in the positive sense. But there is one negative test, in which I'd put quite a lot of faith. Take your prospective communard, and get stoned, or drunk, or whatever your thing is, with him for a whole evening. If the evening's a success, it just might work. If it isn't, it certainly won't.

INSULATION HERESY

BY RICHARD NILSEN

Since virtually all the authorities — utilities, building codes and the Federal government — are agreed that in terms of energy conservation, the more insulation in a building the better, it is worth hearing from one of the only voices around saying that it simply ain't so. The voice belongs to Jay L. McGrew, civil, mechanical and chemical engineer, former space scientist (he worked on heating and cooling design for the moon shots), and currently president of his own R & D company, Applied Science and Engineering, near Denver.[1]

McGrew does not deny that more insulation will cause less heat loss; he simply argues that beyond a certain point, there are other, simpler, cheaper things to do to heating systems that will conserve far more energy than can be achieved by stuffing more insulation into the walls. His data is not warmly received by the insulation manufacturers ("Johns-Mansville," says McGrew, "has lobbyists in every state in the union."); the gas companies are upset with his alternatives; and McGrew increasingly finds himself telling legislators drafting energy conservation codes that they simply don't know what they are talking about. All of which tends to make his arguments into something of a one-man crusade, albeit a crusade with hard data.

For the last year or so, McGrew's company has been monitoring the energy use and heat loss of existing housing in the Denver area.[2] The data gathered from this whole systems approach points to gas furnace design and operation as a prime area for improved energy conservation. McGrew adds, "In terms of having the greatest impact on national energy conservation, the two simplest things to do are to adjust gas furnaces so they operate more efficiently, and to install room air circulators." (See box.)

GAS FURNACES

Natural gas is used for more than half of the space heating in the U.S. The most common system is natural gas/forced air, in which the gas burns and warms a cast iron heat exchanger. Air blown through the heat exchanger is warmed and continues through ducts into the house. These systems are cheap, safe and maintenance free, but their design criteria assumes natural gas to be cheap and plentiful, which has been the case until recently. But no longer and increasingly less in the future.

McGrew claims a gas/forced air system is "marginal as a heat transfer device because it does not maximize the overall efficiency of the furnace." For example, the American Gas Association (AGA), the industry's self-regulating body, rates the efficiencies of gas furnaces. A typical figure of 75% efficiency means 75% of the heat produced goes out of the furnace into the building and the other 25% is lost up the gas vent stack.

The catch is that these ratings are for the furnace alone, not the whole system of furnace, blower, and duct-work throughout the house. Also, the rating considers a furnace that is on and warmed up, although in actual use of course the furnace cycles on and off repeatedly — when it is off the heat exchanger loses its heat up the stack. Taking the whole system's efficiency into account, as McGrew has done in his Denver study, results in average efficiencies for gas/forced air systems of 20 - 30%.

This kind of figure is what has the gas utilities up in arms with McGrew, but since they are a measure of BTUs burned versus BTUs delivered to a room as heat, they are much more meaningful than the AGA rating of an isolated furnace in a testing lab.[3] Adds McGrew, "A furnace contractor can tell you the AGA rating, but none of them are able to tell you the actual efficiency when the furnace is hooked up to the air ducts of a house."[4]

What helps? Turning down your thermostat does not affect the size of the flame in the furnace, and neither does closing heat registers in empty rooms. McGrew's solution is to reduce the orifice size of the gas jet, which reduces the size of the flame. Turning down the gas flow would accomplish the same thing, hopefully getting more heat into the rooms than goes up the stack, but gas companies are — with some justification — horrified at the idea of Mr. or Mrs. Average Customer fiddling with the furnace.

LOWER YOUR HEATING BILL WITH A ROOM AIR CIRCULATOR

Jay McGrew's heat loss measurements of existing housing indicate that a vertical temperature difference of 15° F in rooms with 8-foot ceilings is not uncommon. Hot air rises: to maintain a 70° temperature near the floor of such a house requires 85° of unusable heat at the ceiling. Recycling the hot air with a circulator makes room air temperature more uniform, resulting in less work for the furnace.

An air circulator is a hollow vertical tube sitting on top of a squirrel cage blower that is mounted in a box. The fan sucks hot air down the tube and blows it out at the floor. It's so simple McGrew does not bother to sell the device or even plans for it.*

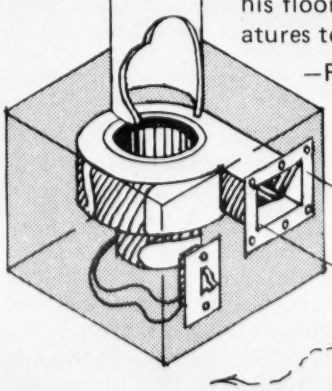
To build one yourself requires not much time or cost. All you need is a 4-inch diameter tube that extends to 6 inches below the ceiling. Plastic pipe, cardboard, or wood (four 1X 6s to make a square tube) work equally well. McGrew made his out of sheet fiberglass, held in a tube shape by wooden collars.

Below the tube the fan sits in a box with a vent in one side. Mount the box on casters and the circulator can be moved from room to room.

For remodeling or new construction, consider building a circulator into the wall as a permanent fixture, similar to a wall-mounted gas furnace. One fan could then service two rooms simultaneously. This is also an effective way of transferring warm air from a heated room to an adjoining room that has no heat source.

Electric blowers are rated by cubic feet of air moved per minute. Air conditioning or electrical supply houses sell them. Size the motor so that the blower is able to cycle a room's volume of air 10 times each hour. With this air flow rate, produced by a blower that cost under $15 (wholesale), McGrew can get his floor and ceiling air temperatures to within 1° of each other.

—RN



Information on a "Heat Recycler" available from:
Customer Service
Nautilus, Box 159
Hartford, WI 53927

Another way to increase efficiency is to cycle more air through the ducts. Putting a larger diameter pulley on the fan end of the blower drive belt will help, or even adding a squirrel cage blower to force more air to circulate.

McGrew also thinks the average furnace is way oversized. "A typical furnace is designed to have a 1/4 duty cycle on the coldest day of the year," says McGrew. "This means that on that day the furnace runs only 1/4 of the time. That furnace is 4 times too big — on the coldest day of the year it should be running all the time." The standard contractor's rule of thumb in sizing a furnace for a house is that the furnace should produce 100 BTUs of heat for each square foot of floor space. McGrew believes 20 - 25 BTUs/sq. ft. of floor is adequate to do the job.

MAXIMUM INSULATION: 3-1/2 INCHES

Since manufacturing fiberglass insulation requires a lot of energy, McGrew is not in favor of squandering the final product. Especially when a typical home has 60 square inches of holes intentionally poked through its insulated skin, all of them losing heat to the outside. (Furnace and hot water heater vents, bathroom vents, kitchen range exhaust hood vent, and clothes dryer vent.)

With these kinds of leaks going untended, and with gas furnaces wasting more heat than they deliver, McGrew's data indicates that it is just throwing money away to use more than 3-1/2 inches of insulation in either the walls or ceiling of a house. Three and a half inches in the ceiling doesn't even meet the FHA code minimum standard; and many new houses are now being framed with 2 X 6, instead of 2 X 4, walls specifically so they can carry thicker insulation in those walls.

Instead of modifying a poor design, or changing a careless construction practice, our consumer economy would always prefer to sell us a new solution, or at least more of something we already have. Jay McGrew's measurements mean that an insulation sales pitch couched in the rhetoric of energy conservation may not be the whole story. ■

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1. Applied Science and Engineering, Star Rt. Box 96 A, Littleton, CO 80120.
2. Applied Science and Engineering is always looking for more houses to monitor. If you live in or near Denver and would like to know what the figures are for your house, give them a call (697 - 4493).
3. Comparing gas furnaces to other heating systems, such as electric, is also instructive. McGrew's figures indicate that if you assume electric heat to be 100% efficient, and leave out the considerable energy required to make the electricity (the "gross source energy"), then a gas furnace is only 40 - 50% as efficient as electric heat in comparably insulated houses. A recent Utah survey of Salt Lake City houses, which did include "gross source energy" in a gas/electric comparison study still gave the edge to electricity: 177,000 BTUs were required per square foot of heated space per year with a gas system, versus 154,500 BTUs/sq. ft./yr. for electric heat. (Amory Lovins, what do you say?)
4. Gas water heaters don't fare much better. McGrew's estimates that 32% of the total energy used in a house in Denver goes to heat hot water, yet a recent study of 31 homes by his company concluded the average efficiency of gas hot water heaters in those homes to be only 46%.

New Equipment Digest

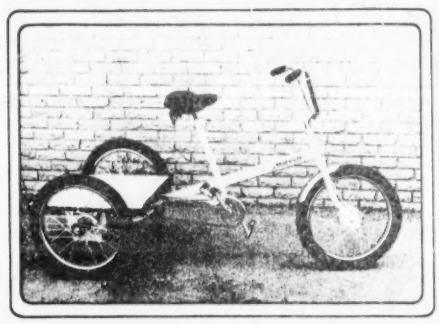
To technofreaks, this big mag is a mother lode fairly stuffed with the gizmos and whatnots of production. The very tone will be a turn-off to those interested in a humane world less marred by industrialism, but open-minded snooping will often turn up procedures and devices with interesting possibilities. Some are the result of OSHA safety standards and many are intended for something else than what you might have in mind. You have to be imaginative. You'll also have to be imaginative getting ahold of most of what's shown, as it's behind "wholesale curtain." There are ways, though . . .

—J. Baldwin [Suggested by Ken Shepard]

SEALING TAPE
patches leaks and cracks

Pressure - sensitive sealing tape adheres to any surface to permanently patch leaks and cracks. Miracle Seal Plus is formulated from 30% steam-refined asphalt and EPDM rubber which boasts ozone and ultra-violet ray resistance and excellent sound dampening and vibration control properties. Product withstands −70 to 180F temperatures and comes in 2½ and 8-in. widths. **Revere Chemical Corp.**, 30875 Carter St., Solon, OH

New Equipment Digest
$15.00 /year (12 issues)
U.S. and Canada
$25.00 foreign
Subscription free to qualified firms listed in Dun & Bradstreet
from:
Penton/PC
Penton Plaza
1111 Chester Avenue
Cleveland, OH 44114



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Energy from the Wind (Annotated Bibliography)

This hefty number is just what you'd expect: complete right down to the last zephyr. "Annotated" means you get a very brief whiff of what the paper is about. The latest supplement is as up to date as you're likely to get unless you're writing it up this afternoon.

—J. Baldwin

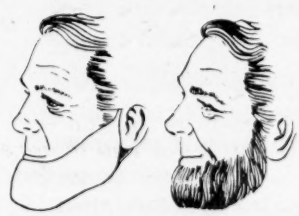
Energy from the Wind
(Annotated Bibliography)
Barbara L. Burke and
Robert N. Meroney
(About 2 inches thick total)
1975, 1977

Basic volume
$7.50 ($8.00 foreign)
First supplement
$10.00 $11.00 foreign)

Both
$15.00 ($16.00 foreign)
from:
Publications
Engineering Research Center
Foothills Campus
Colorado State University
Fort Collins, CO 80523

Beards on the Production Line?

There's no need to bar beards on the production line because Regal's Beard Guard protects facial hair and helps meet Pure Food and OSHA requirements. Made of a cool-wearing non-woven fabric, it fastens comfortably over the ears and adjusts to any size for a neat, sanitary appearance. **Regal Mfg. Co.**, 4316 N. Elston Ave., Chicago, IL 60641 **▲ MARK NED-940**



BRIGHT MARKER writes on any surface

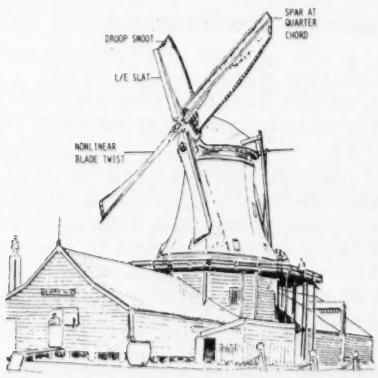
Bright marker will write on any smooth or rough, oily, wet, or dry surface, whether it be metal, wood, glass, plastic, or

ceramic. It allows the user to squeeze all of the ink out of the container. The ball-point marker, which is refillable, comes with choice of yellow, white, red, and black inks. **Diagraph-Bradley Industries, Inc.**, Herrin, IL 62948

Wind Technology Journal

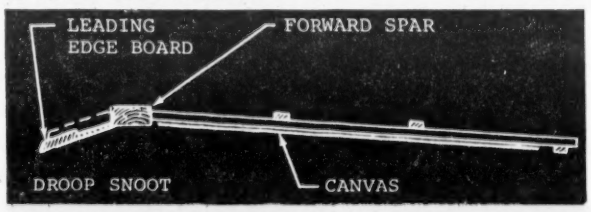
The long awaited publication of the American Wind Energy Association (AWEA) consists of technical papers that will interest the "serious" wind experimenter. As a first edition, it looks good. No fluff at all.

—J. Baldwin



A typical Dutch windmill as developed by the end of the 17th century.

Wind Technology Journal
$15.00 /year (4 issues)
for AWEA members
$20.00 /non members
from:
Wind Technology Journal
P.O. Box 7
Marston Mills, MA 02648



Methanol: Its Synthesis, Use As a Fuel, Economics, and Hazards

There's a lot of loose talk these days concerning the use of Methanol as a substitute for gasoline. Interest was added earlier this year when Brazil officially announced a large scale program to develop methanol as a vehicle fuel. There have been many scholarly papers in addition to the rumours, but they have been difficult to track down and compare in a useful way. Until now. If your interest is in Methanol, you should check this comprehensive bringing-together of major papers.

—J. Baldwin

Methanol: Its Synthesis, Use as a Fuel, Economics, and Hazards
(Order No. NP-21727)
David LeRoy Hagen
1976; 220 pp.

$7.50 postpaid
from:
NTIS
5285 Port Royal Rd.
Springfield, VA 22161

Methanol has many advantages over gasoline with regards to pollution. It burns at a lower temperature. This reduces the nitrogen oxides formed during combustion in air because the reactions and equilibria are exponentially dependent on the temperature. Methanol can be mixed with water and burned at lean stoichiometric air fuel ratios to further reduce the nitrogen oxides formed far below that possible with gasoline.

VITA News

Dear old Volunteers in Technical Assistance. Their **Village Technology Handbook** *(CATALOG, p. 68) was far the first and remains the best of the raw ingenuity manuals. With their newsletter you can stay current.*

—SB

VITA, Inc.
Newsletter
$5.00 /year

from:
VITA, Inc.
3706 Rhode Island Avenue
Mt. Rainier, MD 20822

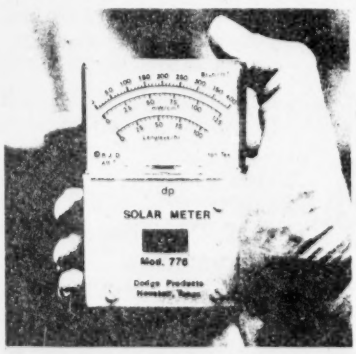
By 1967, VITA had replied to some 4,500 requests and published one manual, the **Village Technology Handbook.** Ten years later VITA has answered over 25,000 inquiries, representing hundreds of different and local experiences with small-scale technologies, has published 40 manuals — many in three languages — directed at basic problems faced world-wide, and has established a specialized library containing over 30,000 documents on appropriate technology. During this decade, VITA has had to deal with many of the situations now being faced by local groups just beginning to organize their own AT resources.

VITA is pulling together these experiences and the documents which describe the VITA system of technical assistance delivery into saleable units. The package includes a thesaurus of key words important to AT users, a basic library storage and retrieval system, a list of references and materials useful to an AT center, and an orientation program concerned with the sources and types of alternatives already accessible through the growing network of information centers. The first three items will be made available through VITA's publications program.

VITA is making its systems available to help local groups and international information centers contribute their resources to a pool of AT data. Local programs can adapt VITA's methods to meet their needs, and still participate in a simplified exchange of materials, having quick access to other centers' collections. If you are interested in making use of VITA's program, contact L. Walker.

Pocket Solar Meter

In the past, if you wanted to actually measure the "power" in the sunlight falling on a site or collector, you had to use a very expensive instrument called a pyranometer. Now you can do it much cheaper with this ingenious meter which is calibrated for direct readings in BTU per Ft² per hour; Langleys per hour, and mW/cm². It's solar powered too; no batteries. Diffuse radiation can also be measured, as can losses through transparent materials. Looks good to me, especially at the price.



—J. Baldwin

Pocket Solar Meter
$51.00 includes shipping
$6.50 case

from:
Dodge Products
Box 19781
Houston, TX 77024

Solar Shop

Typical of a trend towards solar supply stores, this one stocks a wide variety. Not so typical is that the quality appears to be first class.

—J. Baldwin

Solar Shop
Catalog
$1.25 postpaid

from:
Solar Shop
4310 Governors Drive West
Huntsville, AL 35805

Ocean soft technology

There's a Soft Ocean-Systems Collective nascent at the University of California, Santa Cruz (c/o Environmental Studies, UCSC, Santa Cruz, CA 95064). What they're up to:

The first phase of our project involves the assembly of an index of possibilities to be completed by the end of 1977. This will require three inter-connected studies.

1. An analysis of possible techniques in soft technology, including but not limited to:

a) sail power (including sail-assisted vessels) for fishing and maritime transportation, making full use of current technological advances in sailing gear, hull design and construction;
b) utilizing solar and wind energy from ocean platforms;
c) small and medium scale extraction of power from waves, tidal movements and thermal gradients;
d) low-cost and energy efficient mariculture systems; and
e) utilizing solar stills along coastal areas.

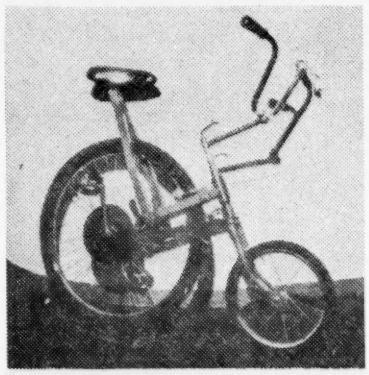
2. A world-wide review of current research and development activities of the technologies listed. This would include collecting information about relevant activities of groups involved with appropriate technology and also about research on larger-scale, capital intensive technologies which might be scaled down or otherwise modified.

3. A survey of the types of geographic areas and societies where use of soft technologies may be appropriate and timely.

Ecodevelopment News

This new bulletin is the best way I know to see what's going on in "Appropriate Technology" and its political aspects in the rest of the world. It consists of brief articles (happily these are readable!), and a succinctly annotated bibliography as well as news. This service has been needed for a long time, and I am pleased to report that these people are doing it very well. They invite your input and (in my opinion) deserve your support. Available in English or French editions (specify).

—J. Baldwin



Ecodevelopment News
Write for information, prices, etc., from:
International Research Center on Environment and Development
54, Boulevard Raspail
Bureau 309
75270 Paris Cedex 06
France

The Secretary for Government Planning in the State of Sao Paulo launched a public contest in 1975 that was intended to gather suggestions for the improvement of bicycle construction and its use in urban centers.

The photo above shows the prototype of the winning bicycle; its construction is better adapted to environmental conditions and more economical to produce than the classic model. This bicycle has no chain and its limited dimensions represent a savings of space.

California Solar Information Packet

Developed to answer the flood of inquiries concerning solar energy, this packet presents a quick course in solar principles and available equipment. It's current, accurate, and free. No copyright either. A fine example of getting the useful word to the people.

—J. Baldwin

California Solar Information Packet
free

from:
Publications Unit
California Energy Commission
1111 Howe Avenue
Sacramento, CA 95825

Davis Energy Conservation Report

This is a description of Living Systems' energy conservation work in Davis, California during the past 4 years. It is without doubt the most complete how-to energy conservation program for a city or region ever done. (I may be a little biased since I helped write it, but I think everyone who sees it will agree.) This report is a distillation of Living Systems' extensive research, writing, and experience. It covers: The Davis Energy Conservation Building Code, development and implementation; Planning for Energy Conservation — land use, solar rights, landscaping, transportation; Solar Homes — design with climate, passive systems for heating and cooling, natural lighting, a low cost solar house, low cost solar duplex; and the Public Education program implemented in Davis. It also includes an evaluation of the project and how it was implemented and accepted (a section that would be useful in more policy documents).

An 8% reduction in electrical energy use per resident customer was achieved during the period 1973-1976. The energy code was adopted and is very strongly supported by many of the local builders (including Mike Corbett — featured in The CQ *Summer 1977). Passive systems developed as part of this work are now used on a school, office, and several homes. The City of Davis is building 6 duplex units, and one house, as low cost housing, using the plans developed during this work.*

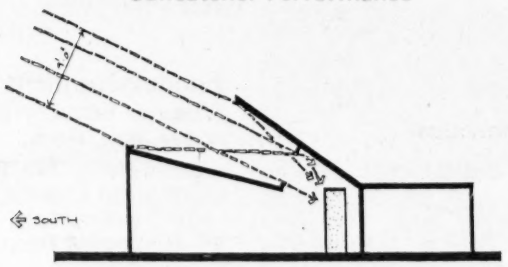
It is a long overdue beginning. The success achieved with such a small program ($3 per resident) makes a 50% reduction in energy use per capita a reasonable goal for the country by 1990. Aiming for just a zero energy growth rate is being conservative!

—David Bainbridge

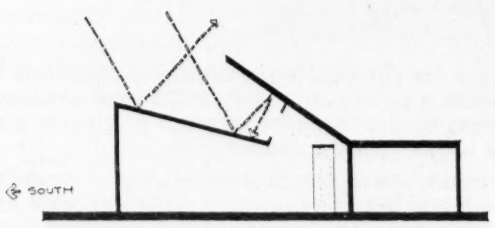
Davis Energy Conservation Report
(Practical Use of the Sun)
Living Systems
1977; 128 pp.

$10.00 postpaid
from:
Living Systems
Route 1, Box 170
Winters, CA 95694

Suncatcher Performance



August 21, 12:00 — 62° sun angle



December 21, 12:00 — 26° sun angle

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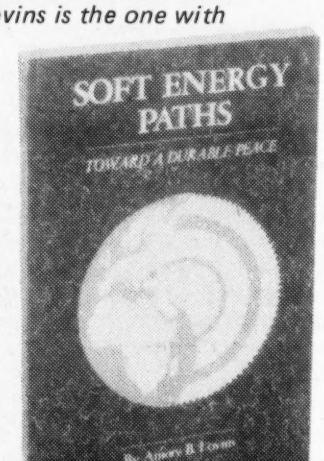
Tests were conducted with concrete blocks and slabs to determine the thermal properties of this material. The work demonstrated that thin concrete blocks (2" to 6" thick) will heat to high temperatures on the surface and produce energy that can't be stored. Thicker chunks (8" to 14") do not heat up as much on the surface and are better for storing solar energy through the night and cloudy days.

Slabs perform somewhat differently than expected. The slab is closely tied into the ground and fluxes with the ground which is an almost infinite heat sink. Only slab areas that receive direct sunlight will soak-up and release significant amounts of energy. Thus, much of the floor area is not as valuable as originally believed for providing heat storage for the winter sun; however, it is more important than expected in summer cooling.

Soft Energy Paths

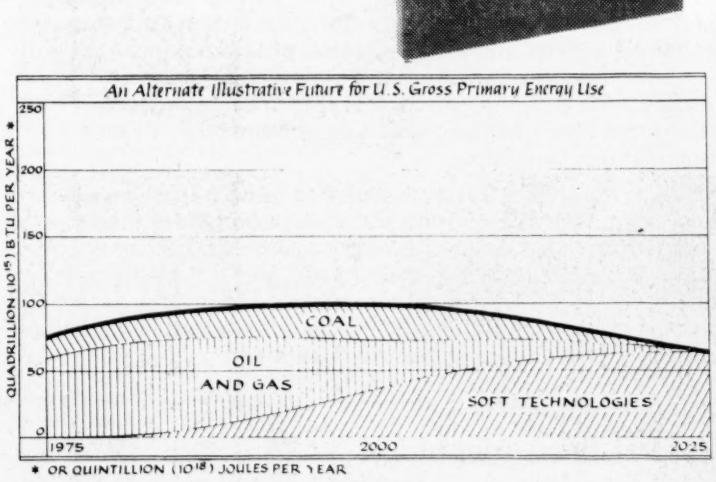
Amory Lovins is one of the good guys if you happen to be anti-nuclear and pro-environment. But to many economists and other conventional wisdom freaks, he is a pie-in-sky type given to utopian, emotional oversimplifications. I find his simplifications to be the result of crap-removal, and his arguments to be essentially reasonable if humanity is to last much longer. His discussion of nuclear matters is particularly enlightening. I've noticed that his noisiest foes are the emotionalists these days; Mr. Lovins is the one with the documentation.

—J. Baldwin



Soft Energy Paths
(Toward a Durable Peace)
Amory B. Lovins
1977; 231 pp.

$6.95 postpaid
from:
Ballinger Publishing Co.
Order Dept.
E. Washington Square
Philadelphia, PA 19105
or Whole Earth



Explaining Energy

Just that, and very well done, too. I recommend it highly not only to the outsider, but to the insider as well. The various controversies seem to be fairly dealt with despite the publisher being the Berkeley "Rad Lab." I'll nominate this paper as the best introduction to the subject I've seen so far. Lee Schipper is a man to watch; his work is seen more and more often where people are trying to find the facts needed for good decisions.

—J. Baldwin

Explaining Energy
(A Manual of Non-Style for the Energy Outsider Who Wants In!)
(Order No. LBL 4458 ERG 76-04)
Lee Schipper
1976; 72 pp.

$6.00 ($2.25 microfiche)

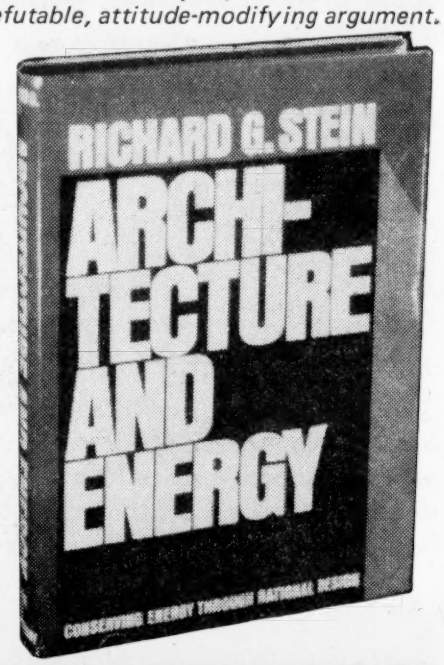
from:
NTIS
U.S. Department of Commerce
5285 Port Royal Rd.
Springfield, VA 22161

Other barriers to efficient energy utilization include the fact that energy prices do not include full environmental costs. Some prices are propped up by cartels, others held down by controls. Worse, most energy use as a function of useful output depends on the original stock of equipment, such as buildings, climate systems, autos, or machines, which cannot be exchanged or re-optimized with each energy price change. More dismal is the problem of misplaced incentives: appliance manufacturers, auto makers, home builders, or landlords don't pay user's fuel bills, so they have no direct incentive to invest in energy efficiency. Any selling advantage due to the extra savings can be obscured through advertising (false or honest, see examples provided), marketing practices such as "rebates," or the general lack of information on energy use and economics.

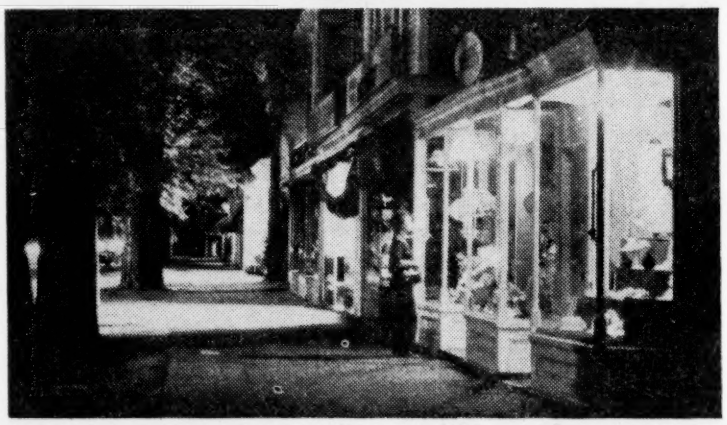
Architecture and Energy

With the "authorities" telling us that not much more can be done towards energy conservation, it is refreshing to read this well-documented assertion that there is opportunity for dramatic energy savings in more thoughtful architecture, the many downright gleeful actual examples show that a reduced "standard of living" need not accompany the savings. There may be more technical books on the subject, but this one is the best I've seen for irrefutable, attitude-modifying argument.

—J. Baldwin



Architecture and Energy
(Conserving Energy Through Rational Design)
Richard G. Stein
1977; 322 pp.
$12.95 postpaid
from:
Doubleday & Co., Inc.
501 Franklin Ave.
Garden City, L.I., NY 11530
or Whole Earth



With no advertising lighting and no illuminated store signs, all merchandise looks attractive on the main shopping street in East Hampton, New York.

Stickler energy debate

Dear Stewart & Jay,

RE: Your review of the Stickler firewood splitter on page 76 of the Summer CQ.

"You get many more BTU's than you spend."

Error No. 1. You only save chopping, the stickler does not bring you the cord of wood.

Error No. 2. Gross Error! I can chop a cord of wood on 500 calories (same as running 6 miles). But a jeep run one hour at 1,500 rpm uses two gallons* of gasoline which is 600,000 calories.

Love, Michael Phillips

*Which occasionally pollutes the air and Bay.

•

Dear Mike,

A cord of typical firewood has about the same number of BTU's as 200 gallons of gasoline. The "Stickler" works just off idle; about 2 gallons per hour in a chevvy pickup. (Gasoline @ about 122,300 BTU/gallon, Hardwood @ about 160,200 BTU per 25 lb. log.). So, though I agree that it's best to maul (I do), for the big user, the Stickler is a boon, especially if the logs are stringy knot-infested mothers.

Love, J.

The canvas canopy provides shade, glowing diffused light, and controlled ventilation. Oaxaca, Mexico.

Jobs & Energy

This deadly paper brilliantly illuminates (by natural means, of course) the realities underlying the conventional wisdom excuse that a clean healthy environment means loss of jobs. This is the stuff of the Next American Revolution, I'll bet, and ought to be required reading for just about anyone older than 12. The rapier of Hazel Henderson is involved here too; she's one of the directors of this outfit. (This price puts you on their mailing list for future papers which will include "Jobs and The Economics of Job Safety," and "A Guide to Employment Impact Statements." Tax-deductible, too.)

—J. Baldwin
[Suggested by James Edison Notestein]

Jobs & Energy
Richard Grossman and Gail Daneker
1977; 21 pp.
$7.50 individual
$15.00 institutional

from:
Environmentalists for Full Employment
Room 300
1785 Massachusetts Av. N.W.
Washington, D.C. 20036

CAPITAL INVESTMENT PER JOB

Industry	Capital investment per employee
petroleum	$108,000
public utilities	105,500
chemicals	41,000
primary metals	31,000
stone, clay, glass	24,000
all manufacturing (average)	19,500
food & kindred products	18,000
textile mill production	11,000
wholesale and retail trade	11,000
services	9,500
apparel and other fabricated textiles	5,000

•

The report stressed that employment associated with energy conservation techniques is local, low- to moderately-skilled, and concentrated in or near urbanized areas which are experiencing the most acute unemployment problems. In contrast, centralized, expensive energy production complexes usually have to bring in highly-skilled labor from outside the construction area. (These transients create a large amount of disruption: temporary housing and many services must be supplied to meet the problems temporary workers create. In many of the energy "boom towns" of the Western United States, crime, alcoholism, family break-ups are well above average. Serving the needs of transient labor ends up being a drain on the local economies the transients were supposed to be stimulating.)

*Here concludes a new story by the unique British science fiction writer (*The Crystal World, The Drought, High Rise, *and this from* Low-Flying Aircraft and Other Stories*).*

In the first part Halloway finds himself somewhat alien in Garden City, a soft-technology paradise located early in the 21st Century some miles from the remains of a major metropolis (New York perhaps) which was emptied by the end of the fossil fuel era. Halloway is tolerated and even cheered on by the other dwellers of Garden City in his striving to build and fly a new form of sailplane.

But when he banks away from the others and soars across the sound toward the gleaming towers of the city, he is leaving the known world.

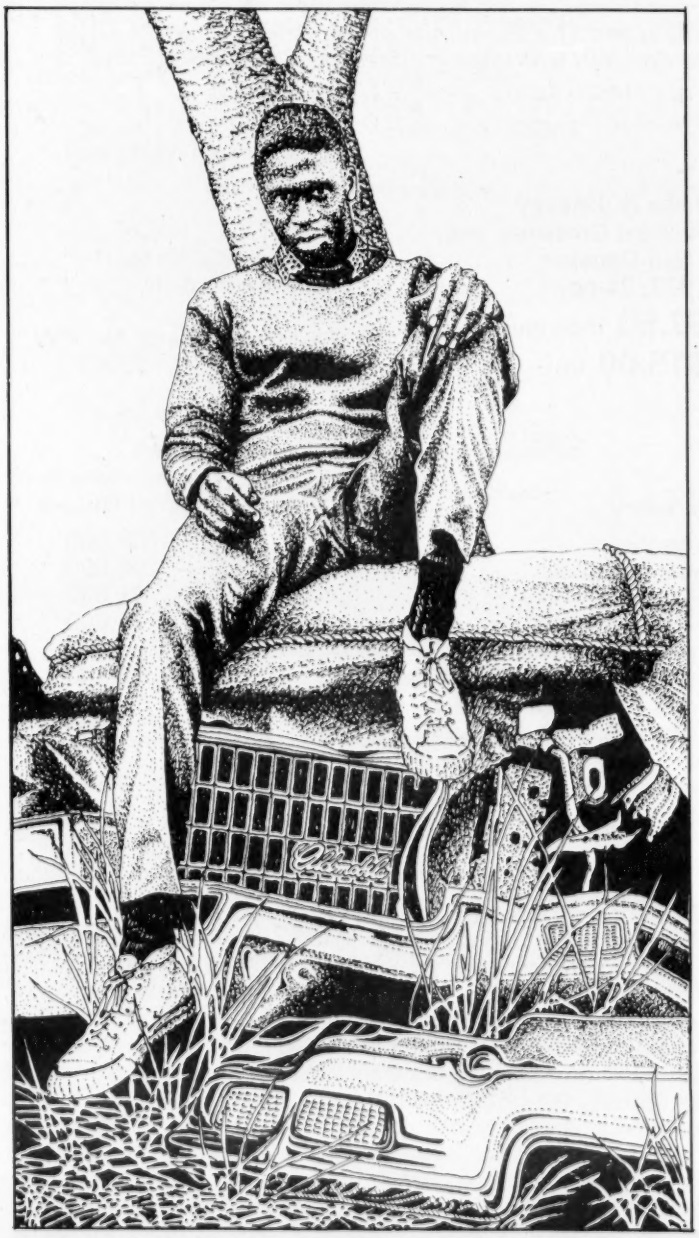
He crashes in the metropolis and begins to explore the still-intact delights of the dead city. There are some puzzles – elaborate ingenious monuments made entirely of television sets, typewriters, or automobile grills; these structures are lush with planted exotic flowers; there are also signs and then the sound of apparently mindless demolition; and near the airport Halloway finds a parking building filled with perfectly maintained cars fueled and ready to drive.

One by one we meet the creators of these art forms. The first is Olds, a shy Negro who communicates by typing out his messages on a pocket calculator. The operational cars and all other forms of maintenance in the city are his work. His obsession is to learn to fly – from his friend Halloway if he can. They set about to repair Halloway's glider and equip it with an engine.

Stillman, the demolisher, crosses their path with his bulldozer and leads them to Mr. Buckmaster, the architect of the bizarre monuments – he is (Ballard explained to us on the phone) an amalgam of Buckminster Fuller, Henry Ford, and Henry Kaiser. Buckmaster's daughter, the lovely and enigmatic Miranda, so different from the explicit, emancipated females of Garden City, is the planter of the flowers. She convinces Halloway to work for her father.

The next evening, as Stillman reminisces about the barely-remembered vivid life of the city, Halloway says, "Stillman – it isn't too late. It's all waiting for us here. We can start it up again. Olds can bring it back to life for us . . ."

–SB



Olds

The Ultimate City

Part 2

BY J. G. BALLARD

Illustrations by Tom Parker

© 1976, J.G. Ballard

Stillman

DURING THE NEXT MONTH, as he continued to work for the old industrialist on his memorials, Halloway began his self-appointed task of reanimating this huge metropolis. The cathedral of cars now reached to a height of three hundred feet, an eccentric but impressive structure of steel, glass and chrome. As it neared completion Buckmaster began to slow down, as if aware that this last monument would mark the end of his life and career.

Free during the afternoons, Halloway returned to Stillman's apartment house. Invariably he found the slim patient figure of Olds standing beside his breakdown truck. The mute's hopes of learning to fly, his dream of escape from the thousands of cars that surrounded him at the airport and the memories of his accident, had become the central obsession of his life. On the one afternoon when Halloway could spare the time to visit the airport he found his sailplane on the roof of the car park, tethered to the sloping concrete deck like a prisoner of the sky. Olds had rebuilt the wings and fuselage, and was already preparing a fifty horse-power engine and propeller to be mounted above the cockpit.

Nodding his approval, Halloway noticed that the museum of cars was already showing signs of neglect. Dust filmed the once immaculate coachwork, leaves and tags of paper lay against the unwiped windshields. As Olds gazed at the sailplane the calculator in his hand flickered continuously.

Halloway, we'll leave soon. When I've assembled the engine.

'Of course,' Halloway reassured him. 'We're going together, I know.'

Flying lessons?

There was panic in the quivering letters.

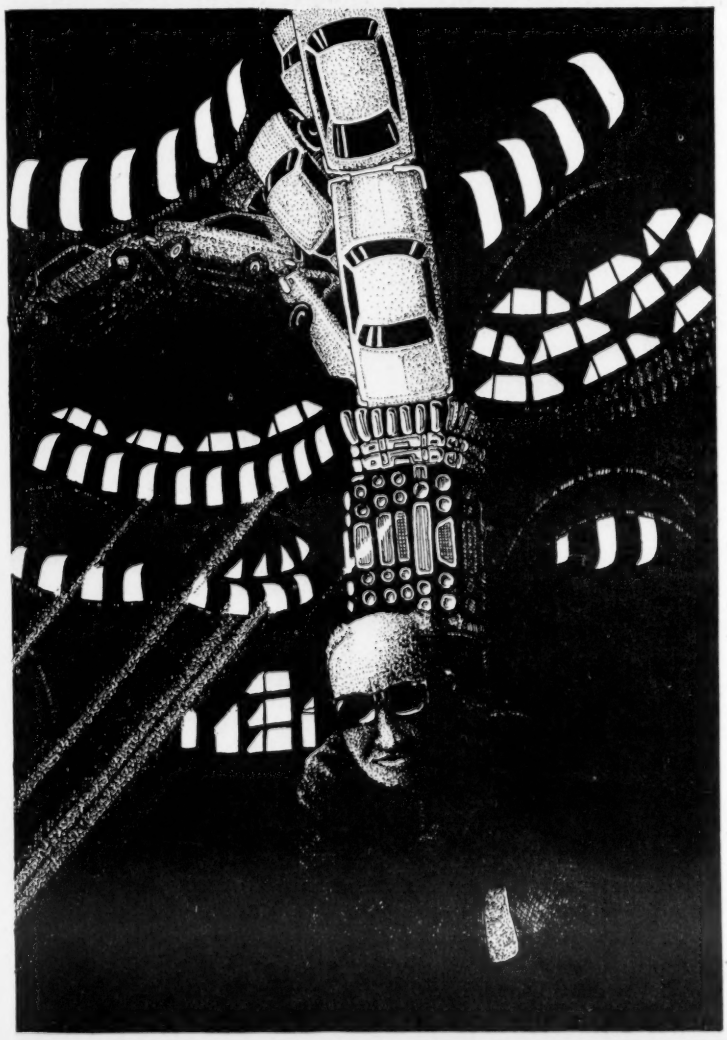
I can't fly yet!

'Olds, naturally. You won't find it difficult – look at the way you handle machinery, you're a genius.'

But Olds was only interested in the aircraft. In the aviation section of one of the city's science museums he found a leather flying suit and helmet dating back to World War I. He took to wearing the costume, his slight figure and scarred head encased in this antique aviator's gear.

For the time being, Halloway decided to humour him. Olds was essential to his plan to restart the city, and without his electrical and mechanical skills the metropolis would remain as dead as a tomb. In return for the promise of flying lessons, Olds drove in from the airport each afternoon, equipped with his generators, cables and tool-kit.

Skeptical of Halloway's ambitious scheme, Stillman wandered through the densely forested park with his rifle, killing the birds. Meanwhile Olds fitted the apartment house with its own electricity supply. A gasolene-driven generator in the entrance hall was soon pounding away, its power supply plugged into the mains. Even this small step immediately brought



Mr. Buckmaster

Miranda

the building alive. Halloway moved from one apartment to the next, flicking lights on and off, working the appliances in the kitchens. Mixers chattered, toasters and refrigerators hummed, warning lights glowed in control panels. Most of the equipment, barely used during the long period of power cuts twenty-five years earlier, was still in functioning order. Television sets came on, radios emitted a ghostly tonelessness interrupted now and then by static from the remote-controlled switching units of the tidal pumps twenty miles away along the Sound.

However, in the tape-recorders, stereo-systems and telephone answering machines Halloway at last found the noise he needed to break the silence of the city. At first, playing through these tapes of conversations recorded by husbands and wives in the last years of the Twentieth Century, Halloway was disturbed by the anxious queries and despairing messages that described the slow collapse of an entire world. The sense of gloom and psychic entropy that came through these reminders to queue for gasolene and cooking oil were the absolute opposite of the vigour and dynamism he had expected.

But the music was different. Almost every apartment seemed to be a broadcasting station of its own. Bursting with crude confidence, the music transformed these ghost-filled rooms into a battery of nightclubs. He moved from floor to floor, blowing the dust from records and cassettes, switching on each of the apartments in turn. Rock-and-roll, big band, jazz and pop boomed through the open windows at the silent park. Even Stillman was impressed, looking up in surprise from the waist-high grass, shotgun raised hesitantly to the air as if thinking twice about trying to make an equal noise.

'Olds, it works!' Halloway found him resting by the generator in the lobby. 'If we can switch on this building we can switch on the whole city! Take off that flying cap and we'll start now.'

Reluctantly, Olds peeled off his helmet. He smiled ungrudgingly at Halloway, clearly admiring the energy and enthusiasm of this excited young man, but at the same time he seemed to be estimating his degree of involvement with Halloway. Although surrounded by his tools and cables, ammeters and transformers, his mind was clearly miles away, in the cockpit of the glider on the roof of the car-park. He looked bored by what he was doing, hardly the mechanic to the world whom Halloway needed.

Halloway noticed that Olds had found a second calculator. The two instruments lay side by side on the floor, the fragments of an extended private dialogue flicking to and fro under the Negro's fingers. For the first time Halloway felt impatient.

'Olds – do you want flying lessons or not? If you can't help me I'll find someone else.' Enjoying his aggressive manner, he added, 'Old Buckmaster will know someone.'

I'll help you, Halloway.

For one flying lesson.

SO OLDS JOINED HALLOWAY in his grand design. While Halloway drove over to the airport to collect the generators stored in the basement of the car-park, Olds worked away at the apartment block, repairing the elevator and air-conditioning units. With almost magical ease he moved around the building, opening fuse-boxes, trailing cable from a second generator to the motors in the elevator head. When Halloway returned he found Olds serenely raising the elevator like a moody but elegant trapeze artist.

'Olds – its unbelievable . . .' Halloway congratulated him, careful to add, 'Wait until you repair the jet planes at the airport.'

Olds shook his head, watching Halloway reflectively, not taken in by him for a moment.

A little too much – even for me.

'Nothing is – now, we'll help Mr. Buckmaster.'

LEAVING A DOZEN STEREOGRAMS to blare their music into the empty streets, Halloway and Olds set off for the mausoleum. Buckmaster was resting in his bedroom. Flattered by Halloway's concern, he watched with approval from his balcony as Olds manhandled a generator into the lobby and ran the cables up to his suite.

From the breakdown truck Halloway unloaded a battery of six arc-lights he had removed from the facade of the airport terminal building.

'We'll set them up around the square, sir,' Halloway explained. 'At night you'll be able to see the whole monument floodlit.'

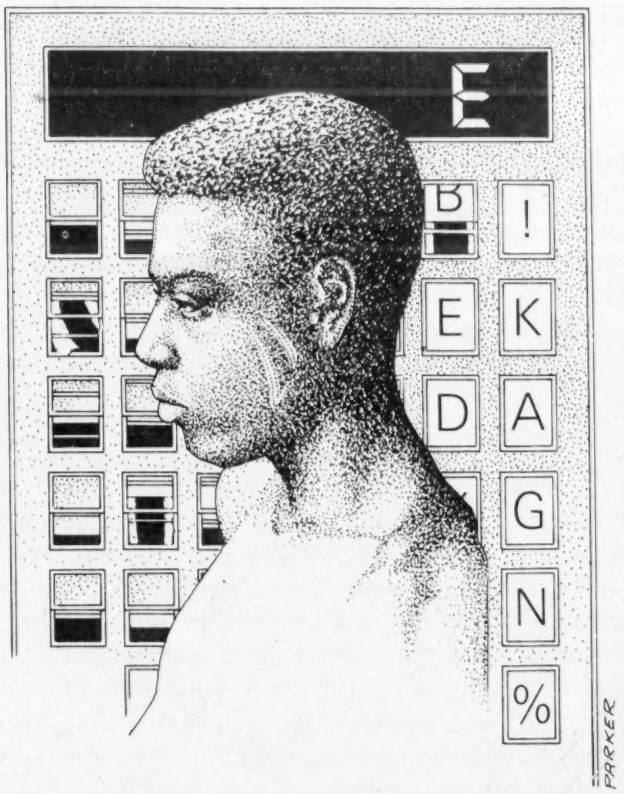
Buckmaster strolled across the square, his sharp eyes following Halloway with some curiosity as he darted enthusiastically around the cathedral of cars, setting the arc-lights in position. Deep in the nave of the monument Miranda was at work on the terraces of her hanging garden. Dressed today in blue jeans and a hippy jacket, a child's beads around her wrists, she was placing petunias and nasturtiums among the radiator grilles thirty feet above the ground. During the previous days Halloway had been too busy to make contact with her. Besides, her fey manner unsettled him. There seemed to be something decadent about this obsessive planting of vines and flowers, an unconscious but all the more sinister attempt to bring back a lurid and over-bright nature red in tooth and claw. Halloway had begun to hate the carpets of blossoms, these creepers and climbing plants that threatened to strangle the city before he could release it. Already he was thinking of the defoliants he had noticed in a chemical supplies store.

'I'm grateful to you, Halloway,' Buckmaster told him as they walked back to the hotel. 'There's a sense of style about you that I like, all too rare these days, you belong to a vanished breed – Brunel, Eiffel, Lloyd Wright, Kaiser, Buckmaster. For once, though, don't pitch your dreams too high. What happens when the gas runs out? You're going to have a second energy crisis all your own.'

Halloway shook his head confidently. 'Sir, there are millions of cars here. The tankers at the airport – some of them are half-full of aviation fuel, enough to keep us going for a year. After that' – Halloway gestured at the air – 'we'll find something else.'

His hand on Halloway's shoulder, Buckmaster listened to the sound of the generator coming to life in the lobby. He watched the arc-lights pulse briefly and then blaze out, almost over-heating the sunshine. For all the old industrialist's caution, Halloway could sense Buckmaster's excitement. Halloway was glad of this. For some reason he wanted to impress him. He was aware that the image of his father, which had propelled him towards the city, had recently begun to fade in his mind, confined to the sailplane tethered like an imprisoned bird on the roof of the car-park.

Halloway pointed at the deserted streets around the square. 'There's so much that should have happened here that never did,' he explained to Buckmaster. 'I want to bring everything alive again, and give back to the city all that lost time.'



DURING THE NEXT WEEKS Halloway embarked on his grandiose scheme to re-animate the city. From the start he knew that the task of literally bringing back to life the whole of this huge metropolis was beyond the skills of even a hundred men like Olds. However, in a symbolic sense the task could be achieved on a more modest scale.

Adjoining the northern side of the square was a cluster of side-streets that formed a self-sufficient neighbourhood cut off from the fifty-storey buildings surrounding it. By chance, this enclave, little more than a block in extent, contained the whole city in miniature. There were modest hotels and theatres, bars and restaurants, even a police-station and one television studio. Wandering around these narrow streets in the afternoons, Halloway noticed that the stores and offices, banks and supermarkets had been built to a smaller scale than in the rest of the city, and at a time before the zoning ordinances which would have excluded the light factories erected in back-yards, the auto-repair shops in converted garages. On the first floors above the bars and shops were dozens of one-man businesses, minor printing works and travel agencies, tailors and TV repairers.

Sitting on a stool in an empty bar, Halloway calculated that the working population of this city-in-miniature would have been little more than 2000 in its heyday. Even now, a hundred people like himself would be able to get most of its activities going again.

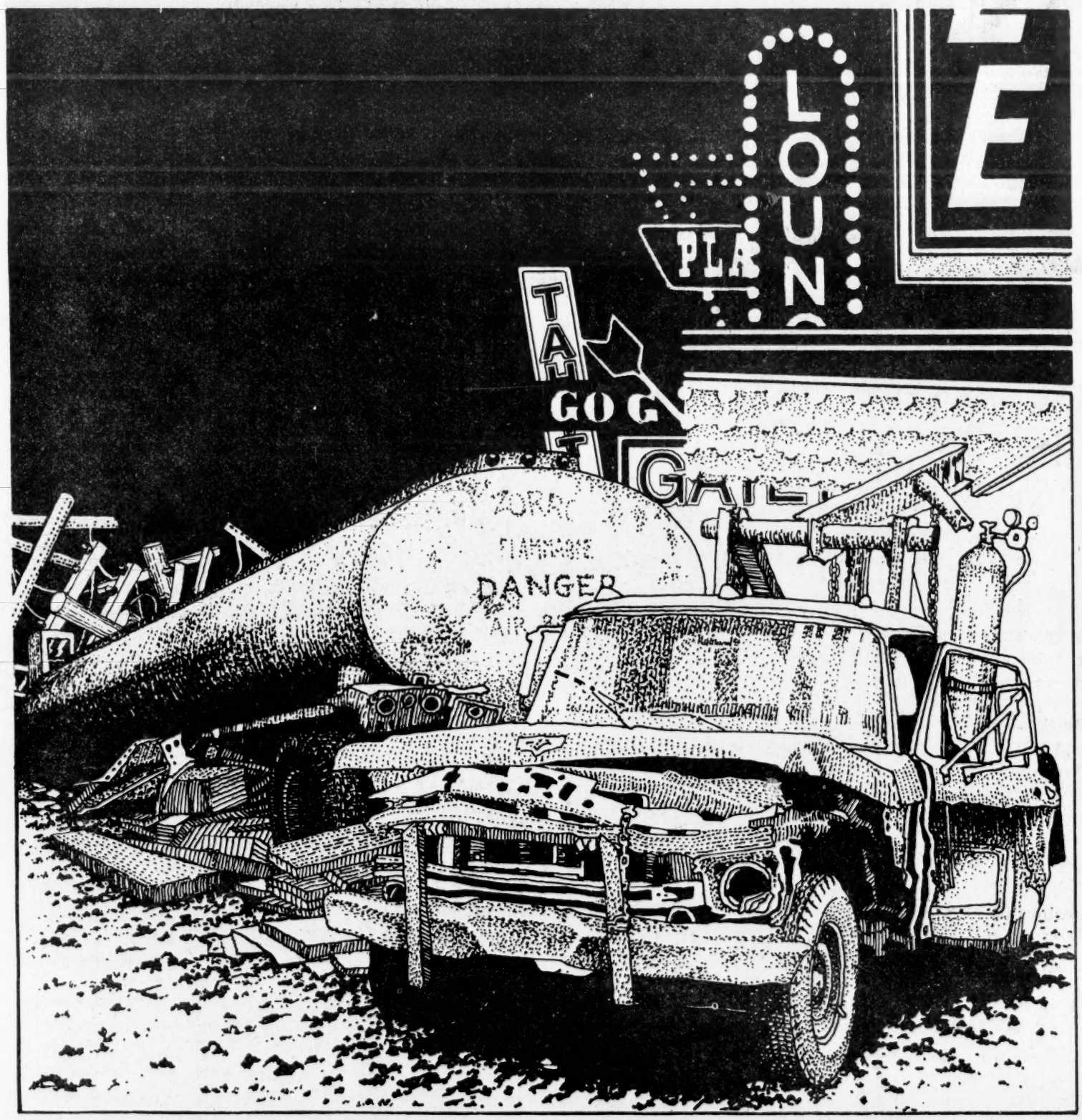
Through the weeks that followed, Halloway and Olds, with grudging help from Stillman, began the task of bringing this neighbourhood back to life. Olds drove in from the airport with a yellow-hulled fuel tanker, filled with enough aviation spirit to power a hundred generators for a month. Tirelessly, he moved in and out of the inspection tunnels below the sidewalks, opening up the electricity sub-stations and feeding down fresh cable. Meanwhile Halloway cut away the tangle of overhead wires that crossed the streets in steel webs, and then he and Olds began the laborious task of re-wiring the roadways. First the street lights came on, filling these deserted thoroughfares with an eerie brilliance, then the traffic signals and pedestrian control signs. Stillman cleared away the hundreds of derelict cars that lined the streets, leaving some twenty vehicles that Olds decided he could renovate.

Supervising all this activity, Halloway drove around in a black-and-white police-car whose engine the young Negro had brought to life. Halloway had made the local police-station his operational headquarters. The lavish wall-maps and communications equipment, the electric alarm signals that ran to so many of the stores and businesses, even the clandestine listening devices which the police had bugged in to many of the bars and hotels, made the station a natural headquarters.

Often working a dozen hours a day, Halloway pressed on, too tired in the evenings to do more than fall asleep in his apartment two floors below Stillman's. Despite all their efforts, however, the chaos seemed to grow rather than diminish. Piles of garbage covered the sidewalks, dozens of generators and fuel drums blocked the doorways of the bars and supermarkets, everywhere there were sections of dismantled switchboards and circuitry.

But one afternoon, after returning from the airport with a small lathe for Olds, he knew that he had succeeded.

A hundred yards from the station he was approaching a minor street intersection when the traffic lights turned from green to red. Laughing aloud at himself for obeying this solitary signal in an empty city of ten thousand intersections, in which he was its only traffic policeman, Halloway nonetheless pulled to a halt and waited until the lights changed to green. An important principle was at stake. Later, as he sat in the cabin of Stillman's tractor, bulldozing the piles of garbage and collapsed electric signs out of the streets, Halloway reflected that he was not working for himself alone. In the three supermarkets within the



reclamation zone he drained the freezer compartments, swept the aisles and re-stacked the pyramids of canned goods, like a dedicated resort hotelier preparing for an invasion army of tourists. Three taxicabs, each in running order, stood outside the neighbourhood's leading hotel. One by one the streets were cleared of debris and abandoned cars, the sidewalks were free from garbage, the plate-glass shopfronts gleamed anew.

Amused but impressed by the transformation, Stillman at last decided to take part. At first, Halloway was reluctant to recruit this deviant figure. Every day Halloway heard him moving around the city, the violent explosions of breaking steel and glass as he dragged down another department-store portico and ran his tracks over the mannequins. In the evenings, as they sat together on the flood-lit terrace of the penthouse, Stillman would gaze resentfully across the roasting deer, as if annoyed that the dark dream of the city which had sustained him for so long should be brought to life in so naive a fashion by this idealistic youth. Then, one evening when Halloway was rhapsodizing about the harshness and vitality of his neat and immaculate streets, Stillman brusquely shut him up and announced that he would join the reclamation project. Clearly he had decided to inject some real life into this toy-town neighbourhood. He curtly turned down Halloway's suggestion that he take over the renovation of a store selling kitchen equipment.

'That's not my style, Halloway. I leave the domestic sciences to you. My expertise lies in other areas . . .'

In no time Stillman had staked out two amusement arcades, several bars and a small nightclub in the basement of an office block. Once Olds had supplied electric current Stillman set to work with a will, mov-

ing at a far swifter pace than his usual surly languor had ever previously allowed. The amusement arcades were soon a blaze of garish lights. Pinball machines chattered and clanged, score numerals stuttered. In the communications room of the police-station Halloway sat by the monitor screen of the traffic-control television system, watching the multicoloured lights ripple across the sidewalks.

Stillman had stripped down the punctured neon signs above the bars and arcades. From a warehouse discovered somewhere he brought in a truckload of intact signs, massive pieces of electrographic architecture that dominated the whole of Halloway's neighbourhood. Giant letters dripped across the night sky, cascades of pink light fell mushily across the facade of his nightclub, the winged emblems of long-vanished airlines pulsed through the overloaded air, the roof-sills of bars and amusement arcades were trimmed with tubes of racing fluorescence.

Watching uneasily on his TV monitor, Halloway wondered how to put a stop to this lurid invasion. At dusk, as the surrounding city grew dark, he left the police-station and cruised the streets in his squad-car, listening to the generators beating in the basements and alleyways, the tireless hearts pumping out this haemorrhage of light. He knew now why Stillman had been so dismissive of his laborious restocking of offices and supermarkets. It was only now, in this raucous light and noise, that the city was being its true self, only in this flood of cheap neon that it was really alive.

Halloway parked outside a bank he had begun to reclaim. Olds' tool-bags and equipment trolleys were by the doorway. He had been working on the electrically-operated vault doors before leaving for the airport, and the piles of old banknotes lay exposed in their metal trays. Halloway looked down at the bales of notes, worthless now but a fortune thirty years earlier. In Garden City money was never used, and had given way to a sophisticated system of barter and tithes-giving that eliminated the abuses of credit, installment buying and taxation.

Touching the banknotes, with their subtle progression from one denomination to the next, a means of quantifying the value of everything, its promise and obligation, Halloway watched the garish lights of the neon signs in the street flicker across his hands. He was glad that Stillman had transformed this staid and well-swept thoroughfare. They needed workers for the stores and offices and production lines, and they needed visitors for the hotels and bars. They would need money, as well, to oil the engine of competition.

Halloway locked away the trays of banknotes and slipped the keys into his pocket. There were thousands of other banks in the city, but in the printing shop next to the police station Olds would over-print the notes with Halloway's frank. The thought pleased him – to have reached the point of issuing his own currency meant that success was really at hand.

He ended his evening rounds at the square. Lit by the arc-lights, Buckmaster's memorial of cars rose over three hundred feet into the air, a cathedral of rust. The vines and flowers that climbed its sides looked dead in the fierce light. Halloway was glad to see that their once vivid colours were blanched out by the powerful glare. A dozen reflections in the dark buildings around the square transformed it into a mortuary plain of illuminated tombs.

Buckmaster stood on the steps of his hotel, looking with obvious pleasure at this huge spectacle. Miranda, however, watching from a window above, stared at Halloway with equally clear hostility. That afternoon Halloway had stripped the last of the poppies and forget-me-nots from the avenues around the reclamation zone. As he crossed the square at the controls of the tractor, the bale of flowers in the metal scoop like a multicoloured haystack, Miranda followed him through the streets, catching in her white hands the loose petals that drifted in the air.

Now, on her balcony, she was dressed in a bizarre Barbarella costume of silver metal and glass, like a science-fiction witch about to take her revenge on Halloway.

Unaware of his daughter's anger, Buckmaster took Halloway's arm and pointed to a building across the square, the offices of a former newspaper. A frieze of electric letters that had once carried a continuous news strip had been repaired by Olds, a city-sized replica of the display panels of his pocket calculators. Letters began to race from right to left.

'Halloway, they ought to hand you the mayoral chain, my boy, and put your name up there, high, wide and handsome!'

But already the first message was flashing past.

OLDS! OLDS! OLDS! OLDS! OLDS!

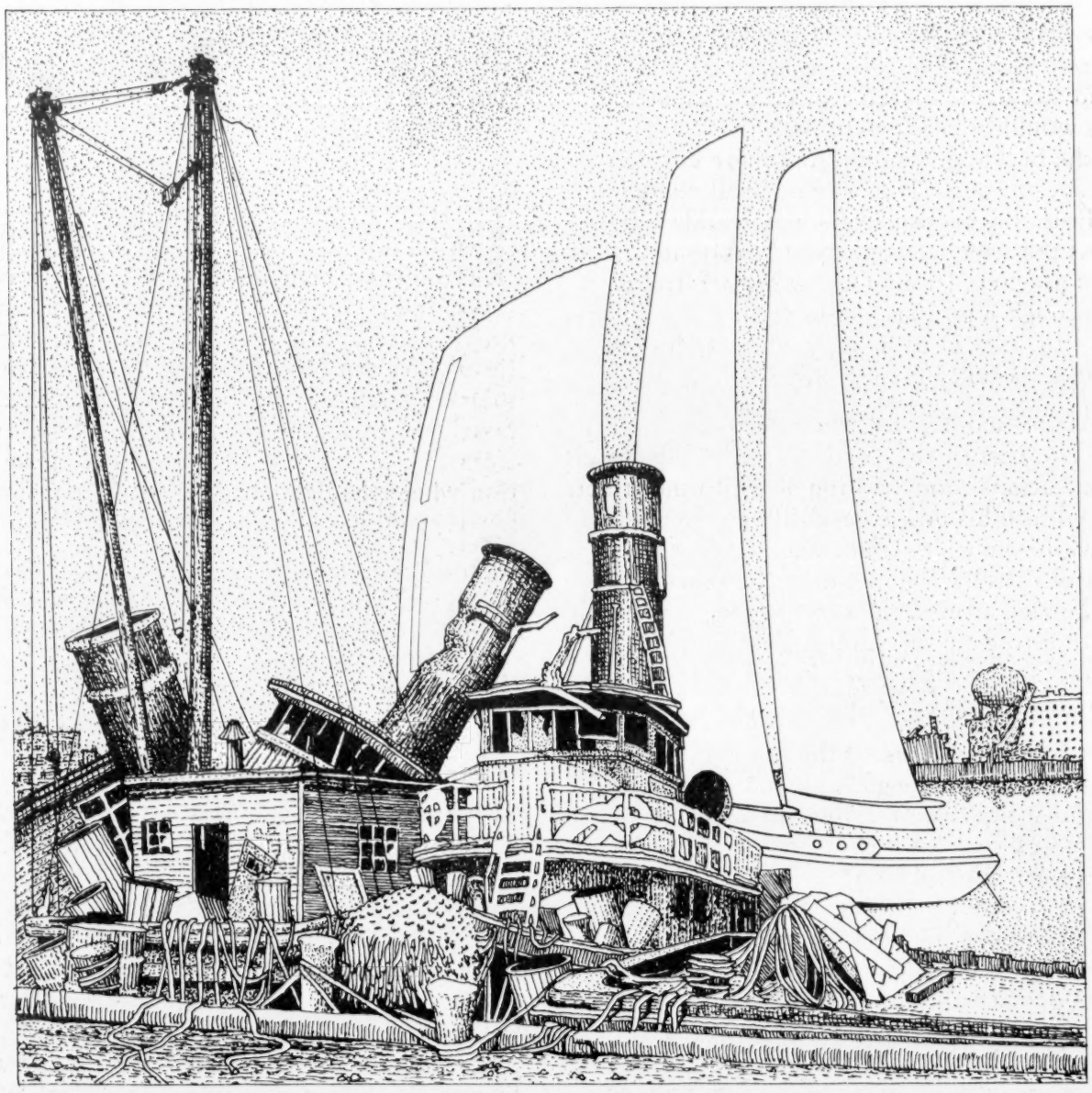
Delighted by this, Halloway joined Buckmaster and rode the elevator with the old industrialist to the observation platform beside his cathedral. As they stepped out, however, a new message was racing across the display sign.

DANGER! FIVE MILES NORTH-EAST. INVASION PARTY COMING.

TWO DAYS LATER, when the rescue expedition arrived, Halloway was ready to deal with them in his own way. During that first night after Olds had given the alarm he spent the long hours until dawn in the top-floor offices of the newspaper building. Soon after sunrise he watched the landing party disembark from their sailing vessel, a three master whose white aluminum sails and white steel hull stood out against the dark water like chiselled bone. Using binoculars, Halloway immediately identified the ship, a barquentine built by the Garden City administrative council.

Halloway had taken for granted that a rescue party would one day come to search for him. Presumably they had been scouring the shore along the northern coast of the sound, and had now decided to explore the city itself, no doubt guided there by the sudden efflorescence of light each evening, this neon pleasure-drome that had come to life among the silent tower-blocks.

[more →]



An hour after dawn Halloway drove north through the city in his squad-car. He left the vehicle half a mile from the landing point and walked ahead through the deserted streets. The white masts and square metal fore-sail of the barquentine rose above the buildings near the quay where she had docked. There was no rigging – remote-controlled by an in-board computer that assessed tides, course and wind-velocity, the ship was the ultimate in the technology of sail.

Halloway climbed on to the roof of an appliance store and watched the expedition party come ashore. There were ten people in the group, all members of the Garden City gliding club – Halloway recognized the architect and his twelve-year-old son, and the elderly hydrographer with the red beard. As they unloaded their bicycles and wicker hampers they reminded Halloway of a Victorian picnic party exploring a nature reserve. Had he really spent his life with these quiet, civilized and anaemic people? Amused by them, but already bored by the whole absurd business, he watched them adjust their bicycle clips and tyre pressures. Their polite and gentle manners, the timid way in which they gazed down the empty streets, had given him all the ideas he needed on how to deal with them.

AS HALLOWAY HAD GUESSED, it took the rescue party a full two days to reach the centre of the city. During the mornings they pedalled forward at a sedate pace, cautiously making their way through the abandoned cars and festoons of rusting telephone wire. There were endless pauses to consult their maps and take refreshment. They had even brought a portable recycling unit with them, and carefully reprocessed their kitchen and other wastes. By early afternoon they were already pitching their elaborate tents and laying out their complex camping equipment.

Luckily, it was almost dusk when they finally reached the central square. On the television monitor in the police-station Halloway watched them dismount from their bicycles and stare with amazement at Buckmaster's towering monument. Lit by a single floodlight inside the nave the memorial rose above the darkened square, the hundreds of windows and radiator grilles shining like the facets of an immense glowing jewel.

The party edged forward tentatively, gripping their bicycle handlebars for moral support. All around them the streets were dark and silent. Then, as they all bent down to take off their trouser clips, Halloway leaned across his control console and began to throw the switches.

LATER, WHEN HE LOOKED BACK on this episode, Halloway relished his routing of the rescue party and only wished that he had recorded it on the traffic control video-tape system. For thirty minutes total pandemonium had broken

loose in the square and nearby streets. As a hundred generators roared into life, pouring electric current into the grid, arc-lights blazed around the square, freezing his would-be rescuers in their tracks. The facades of the buildings around the square erupted into a cataract of neon. Traffic lights beckoned and signalled. From the loudspeakers which Olds had strung across the streets came a babel of sound – police sirens howling, jet aircraft taking off, trains slamming through junctions, car horns blaring, all the noises of the city in its heyday which Halloway had found in a specialty record shop.

As this visual and acoustic nightmare broke loose around the members of the rescue party, Halloway left the communications room and ran down to the street. As he climbed into his police-car Stillman swerved past in his white gangster's limousine. Racing after him, Halloway switched on his siren. He reached the square and hurtled around it, cornering on two wheels in the way approved by the stunt-drivers in the fifty-year-old crime films which Stillman had screened for him in his nightclub that afternoon.

For the next fifteen minutes, as the noise of police sirens and aircraft, machine-gun fire and express trains sounded through the streets, Halloway and Stillman put on their mock car chase, pursuing each other around the square, plunging out of narrow alleys and swerving across the sidewalks, driving the terrified members of the rescue party in front of them. Stillman, inevitably, soon went too far, knocking the bicycles out of their hands and crushing two of the complex machines against a fire hydrant. In fact, Halloway was certain that if they had not turned tail and run at least one member of the party would have been killed.

Abandoning their equipment and sharing the remaining bicycles, it took them less than six hours to reach the ship and set sail. Long after they had gone, when Halloway had switched off the recorded sounds and dimmed the neon lights, Stillman continued to drive around the square in his white limousine, jumping the lights at the traffic intersections, tirelessly wheeling the big car in and out of the alleys and side-streets, as if deranged by this dream-come-true of the violent city.

From the communications room at the police-station Halloway watched Stillman's car swerving around the square. Somehow he would have to find a means of containing Stillman before he destroyed everything they had done. Tired out by all the noise and action, Halloway reached forward to switch off the monitor, when he realized that he was no longer the only spectator of Stillman's disturbed driving.

Standing in the portico of a deserted bank, their slim figures almost hidden by the high columns, were two boys in their late teens. Despite the shiny plastic suitcases and their flamboyant shoes and jackets – presumably taken from the stores on the outskirts of the city – Halloway was certain that they had come from one of the pastoral settlements. On their Garden City faces was a childlike expectation, an innocent but clear determination to seize the life of the metropolis. Switching on the loudspeaker system so that he could talk to them, Halloway picked up the microphone. The first of his people had arrived to take their places in his city.

IT HAD BEEN another successful day. On the television monitor in the police commissioner's office Halloway watched the activity in the avenue below. It was five o'clock in the afternoon, and the rush-hour traffic was beginning to build up. The sidewalks were thronged by more than a dozen pedestrians, leaving their offices and workshops on their way to the neighbourhood bars and supermarkets. A hundred yards from the station, six cars were blocking an intersection where the lights had failed. Their horns sounded impatiently above the street noise.

Halloway spoke to the desk sergeant in the orderly room. 'Get a man over to the Seventh Avenue intersection. There's a faulty green light holding up the traffic.'

'He's already left, Mr. Halloway.'

'Good – if we don't watch it now there'll be chaos in an hour or two.'

These minor breakdowns were a pleasant challenge to Halloway. Even now, as one of Stillman's young men ignored the stuttering red light and the outstretched arm of the police constable, Halloway was in no way annoyed. In a sense, these displays of aggression pleased him, confirming everything he had hoped about the reclamation scheme. The pedestrians in the street below strode along purposefully, pushing past each other with scant courtesy. There was no trace here of good humour and pastoral docility.

In an alleyway facing the station a diesel generator was pumping out dense clouds of sooty smoke. A three-man repair gang recently trained by Olds had emptied the sump oil across the sidewalk, in clear contravention of the local ordinances. But, again, Halloway made no attempt to reprimand them. If anything, he had done what he could to frustrate any efforts to bring in stricter clear-air regulations. Pollution was part of the city, a measure of its health. All the so-called ills that had beset this huge metropolis in its prime had visited themselves with flattering haste on Halloway's small enclave. Pollution, traffic congestion, inadequate municipal services, inflation and deficit public financing had all promptly re-appeared.

Halloway had even been pleased when the first crime was committed. During the previous night several clothing stores had been broken into, and pilfering from the supermarkets went on continuously. Halloway had spoken to Stillman about the light-fingered behaviour of his entourage. Lounging back with his young cronies in his 1920s gangster limousine, Stillman had merely flicked the sharp lapels of his dove-grey suit and pointed out that petty crime helped to keep the economy running.

'Relax, Halloway, it's all part of the problem of urban renewal. Do I complain that some of your boys are on the take? You've got to increase turnover. You're working these poor devils so hard they haven't time

to spend their pay. If they've got anything left by the end of the week, that is. This is a real high-rent area you've set up for them. Any time now you'll have a housing crisis on your hands, social problems, urban unrest. Remember, Halloway, you don't want to start a flight from the cities.'

Halloway had taken this friendly ribbing in his stride, though the rapid increase in the size of Stillman's gang had begun to make him uneasy. Clearly Stillman relished lording it over this entourage of wide-eyed teenagers and farm-bred youths, fitting them up with their gangster suits and weapons like a corrupt stage-director playing ironic games with a chorus of young actors. At times Halloway felt that he too was part of this sardonic man's devious entertainments.

However, apart from the stealing, Stillman's continued ravaging of department store windows in the surrounding districts of the city had turned Halloway's neighbourhood into an island of light and activity in an ever-larger sea of devastation. Halloway's plans for expansion had been effectively shelved by this deliberate vandalism, the wholesale destruction of complete city blocks.

In addition, Stillman's entourage had come into collision with Olds, and Halloway now depended more than ever on the mute. Two of Stillman's men had tried to break into Olds' automobile plant, complaining that the models they had ordered from him had not been delivered. For several days Olds had retreated to his rooftop eyrie above the garage at the airport. Without him everything soon began to run down. Halloway drove out to pacify him, and found Olds sitting below the wing of the glider tethered to the roof, calculators flicking in his hands as he brooded to himself. His eyes were gazing at the flights of birds taking off from the reservoirs around the airport, thousands of wild geese moving westwards across the city. Uneasily, Halloway noticed that the cars in his museum were still dusty and untended. One of them, the black Duesenberg, had been savagely attacked, its windows knocked in and upholstery slashed, controls pounded out of recognition by a heavy mallet.

But for a brilliant stroke of Halloway's, Olds would long since have left. Two months beforehand, he had shown his first irritation with the throngs of youths and teenage girls who were entering the reclamation area. Many of them were idealists like Halloway, repressed by the passivity of the garden communities and eager to help re-start the city. However, an equal number were drifters and misfits, who resented taking orders from Olds and began to mimic him, flashing obscenities on the read-out panels of the pocket calculators they had taken from a business-machines store.

Searching for some way of retaining his hold over Olds, Halloway came up with the suggestion that the mute could own and manage his own automobile plant. The idea had immediately appealed to Olds. In an underground garage near the police-station he and his work-force soon constructed a crude but functioning production line, on which the dozens of cars being re-equipped and re-engined moved along a section of railway line. They entered as little more than wrecks picked up off the street by their prospective owners, and emerged at the far end of the line as fully functioning vehicles. Delighted by this, Olds had agreed to stay on in the city.

In fact, Halloway's idea worked better than he hoped. The motor-car was the chief commodity of the city, and demand for it was insatiable. Almost every one of the new inhabitants now owned three or four cars, and their chief recreation was driving around the streets of the reclamation area dressed in the latest finery. Parking problems had become acute, and a special task force under Olds was renovating the kerbside meters, an unpopular measure grudgingly accepted only because of the special status of the automobile and the important position it occupied, economically and otherwise, in people's lives.

Despite these problems, Halloway was satisfied with his achievement. In the four months since the first of the new arrivals had turned up, a genuine microcosm of the former metropolis had come into existence. The population of the city was now two hundred, girls and youths in their late teens and early twenties, emigrants from Garden City and Parkville, Laurel Heights and Heliopolis, drawn from these dozy pastoral settlements to the harsh neon glare that each evening lit up the night sky like a beacon.

By now any new immigrants – some of them, worryingly, little more than children – were rapidly inducted into urban life. On arrival they were interviewed by Halloway, issued with a list of possible jobs, either on Olds' production line, in the clothing stores and supermarkets, or in any one of a dozen reclamation gangs. The last group, who foraged through the city at large for cars, fuel, food supplies, tools and electrical equipment, in effect represented the productive capacity of the new settlement, but in time Halloway hoped that they would embark on the original manufacture of an ever-wider range of consumer goods. Cash credits (banknotes franked with Halloway's name) were advanced to the new recruits against their first week's pay, with which they could buy the garish clothing, records and cigarettes they seemed to need above all else. Most of the two hundred inhabitants were now heavily in debt, but rather than evict them from their apartments and close the discotheques, bars and amusement arcades where they spent their evenings, Halloway had astutely lengthened the working day from eight to ten hours, enticing them with generous though uneconomic overtime payments. Already, he happily realized, he was literally printing money. Within only a few months inflation would be rampant, but like the crime and pollution this was a real sign of his success, a confirmation of all he had dreamed about.

THERE WAS A FLICKER of interference on the monitor screen, indicating a fault in the camera mounted outside the station. Muttering with mock-annoyance, 'Nothing works any more,' Halloway switched to the camera in the square. The open plaza with its memorial of cars was deserted at this hour. The monument had never been completed. Stillman had long since lost interest in the hard work

of construction, and no one else had volunteered, particularly as no payment was involved. Besides, these memorials of cars and radiator grilles, tyres and kitchen appliances created an atmosphere of defeat and fatality, presiding like funeral pyres over the outskirts of the city as the new arrivals pressed on to their promised land.

A few attempts had been made to dismantle the pyramids, but each time Buckmaster and his daughter had managed to make good the damage. Dressed in her ever-changing costumes, in this cavalcade of Twentieth-Century fashion, Miranda moved tirelessly through the city, seeding the glass-filled streets with poppies and daisies, trailing vines over the fallen telephone wires. Halloway had given two assistants the task of following her around the city and destroying whatever new plants they could find. Too many of the flowers she was now setting out in window boxes and ornamental urns had a distinctly sinister aspect. Halloway had caught her the previous week, eerily at work in the reclamation area itself, bedding out bizarre lilies with nacreous petals and mantis-like flowers in the entrance to the police-station, glamorous but vicious plants that looked as if they might lunge at the throats of anyone passing by. Halloway had pushed past her, overturned her flower trolley and torn out the lilies with his bare hands. Then, with unexpected forbearance, he had ordered his sergeant to drive her back to her hotel. His feelings for Miranda remained as confused as they had been at their first meeting. On the one hand he wanted to impress her, to make her recognize the importance of everything he had done, on the other he was vaguely afraid of this young and naive Diana of the botanical gardens, about to embark on some macabre hunt through the intense, over-heated foliage.

The day after this incident Buckmaster paid Halloway a visit, the first he had made to the reclamation zone. Still keen to earn the old industrialist's approval, Halloway took him on a tour of the neighbourhood, proudly pointing out the mechanics working on the motor-cars on Olds' production line, the gleaming vehicles being collected by their new owners, the system of credit and finance which he had evolved, the busy bars and supermarkets, the new arrivals moving into their refurbished apartments, and even the first two-hour-a-day transmissions from the local television station – the programmes, with complete historical accuracy, consisted entirely of old movies and commercials. The latter, despite a hiatus of thirty years, were still up-to-date advertisements of the products they bought and sold in the stores and supermarkets.

'Everything is here that you can think of, sir,' Halloway told the old man. 'And it's a living urban structure, not a film set. We've got traffic problems, inflation, even the beginnings of serious crime and pollution . . .'

The industrialist smiled at Halloway in a not unkindly way. 'That's a proud boast, Halloway. I'd begun to notice those last two myself. Now, you've taken me on your tour – let me take you on one of mine.'

Reluctant to leave his command post in the commissioner's office, Halloway nonetheless decided to humour Buckmaster. Besides, he knew that in many ways Buckmaster had taken over the role of his own father. Often, as he relaxed in the evenings at his apartment overlooking the park, Halloway seriously wondered if his father would have understood all that he had achieved, so far beyond the antique engine parts and aircraft designs. Unhappily, Buckmaster – who certainly did understand – remained ambiguous in his response.

Together they set off in Halloway's car, driving for over an hour towards the industrial areas to the north-west of the city. Here, among the power stations and railyards, foundries and coal depots, Buckmaster tried to point out to Halloway how the Twentieth Century had met its self-made death. They stood on the shores of artificial lagoons filled with chemical wastes, drove along canals silvered by metallic scum, across landscapes covered by thousands of tons of untreated garbage, fields piled high with cans, broken glass and derelict machinery.

But as he listened to the old man warning him that sooner or later he would add to these terminal moraines, Halloway had been exhilarated by the scenes around him. Far from disfiguring the landscape, these discarded products of Twentieth-Century industry had a fierce and wayward beauty. Halloway was fascinated by the glimmering sheen of the metal-scummed canals, by the strange submarine melancholy of drowned cars looming up at him from abandoned lakes, by the brilliant colours of the garbage hills, by the glitter of a million cans embedded in a matrix of detergent packs and tinfoil, a kaleidoscope of everything they could wear, eat and drink. He was fascinated by the cobalt clouds that drifted below the surface of the water, free at last of all plants and fish, the soft chemical billows interacting as they seeped from the sodden soil. He explored the whorls of steel shavings, foliage culled from a metallic christmas tree, the bales of rusting wire whose dense copper hues formed a burnished forest in the sunlight. He gazed raptly at the chalky whiteness of old china-clay tips, vivid as powdered ice, abandoned railyards with their moss-covered locomotives, the undimmed beauty of industrial wastes produced by skills and imaginations far richer than nature's, more splendid than any Arcadian meadow. Unlike nature, here there was no death.

LULLED BY THIS VISION of technology's Elysian Fields, Halloway sat half-asleep behind the commissioner's desk, dwarfed by the leather-backed chair. When he woke he found that the TV monitor was again showing a jumble of interference patterns. Part of the excitement of city life was the constant breakdown of these poorly designed appliances, and the difficulty of getting hold of a repairman. In Garden City, every piece of equipment, every washing machine and solar-powered kitchen stove, functioned forever with dismaying perfection. In the rare event of even the smallest malfunction the designer would appear on one's doorstep as fast as his bicycle could carry him. By contrast, the metropolis operated an exciting knife-edge away from total collapse.

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Leaving the station, Halloway saluted the two eighteen-year-old policemen sitting in their patrol car. There were ten officers under his command, an over-large proportion of the total number of inhabitants, but all Halloway's scrutiny of the commissioner's records confirmed that a large police-force, like pollution and a high crime-rate, was an essential feature of city life.

Besides, they might well be useful sooner than he expected. As he stepped into his car to drive the fifty yards to Olds' garage – Halloway never walked, however short the distance, and often U-turned his car to get from one side of the road to the other – a gang of teenage boys tumbled with a chorus of obscenities from a nearby amusement arcade. They clustered around a large motorcycle with extended forks and a lavishly chromed engine. All wore black leather jackets strung with sinister ornaments – iron crosses, ceremonial daggers and death's heads. The driver kick-started the machine with a violent roar, then lurched in a circle across the sidewalk, knocking down part of a tobacco kiosk before veering into Halloway's path. Without apology, he drummed his fist on the roof above Halloway's head and roared off down the street, weaving in and out of the shouting pedestrians.

As Halloway expected, most of the workers on Olds' production line had packed up early. The thirty vehicles mounted on their movable trolleys had come to a halt, and the few mechanics left were plugging the batteries into the overnight chargers.

Olds was seated in his glass-walled office, moodily playing with his collection of pocket calculators, slim fingers flicking out fragments of some strange dialogue. As life for him had become increasingly complex, with all the problems of running this automobile plant, he had added more and more calculators. He placed the instruments in a series of lines across his desk, and seemed to be working towards a decision about everything, laying out the elements of this reductive conversation like cards in a game of solitaire.

He gazed up at Halloway, as if recognizing him with difficulty. He looked tired and listless, numbed by his work on all the projects which Halloway pushed forward ruthlessly.

'Olds, it's only six. Why are we scrapping the evening shift?'

There are not enough men for the line.

'They should all be here.' When Olds sat back, shuffling the calculators with one hand, Halloway snapped, 'Olds – they need the work! They've got to pay back their wage credits!'

The mute shrugged, watching Halloway with his passive but intelligent eyes. From a drawer he pulled out his old flying-helmet. He seemed about to question Halloway about something but changed his mind.

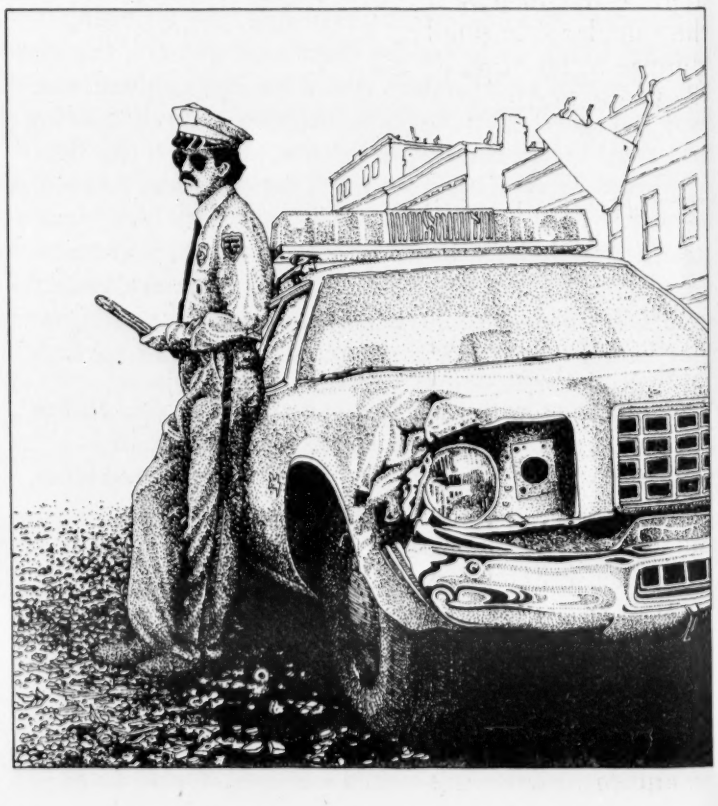
Halloway, they lack your appreciation of the value of hard work.

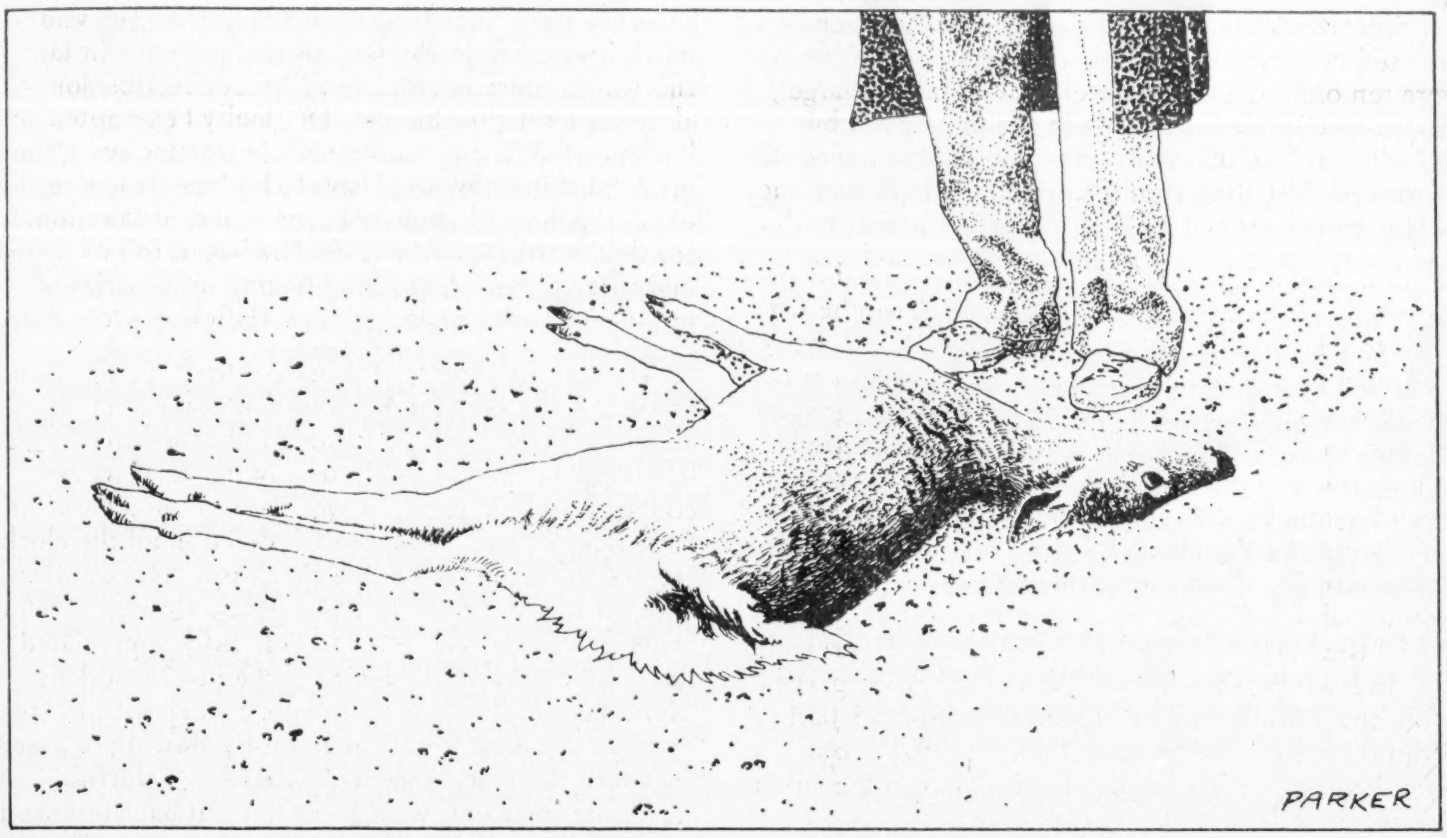
'Olds, can't you understand?' With an effort, Halloway controlled his exasperation. He paced around the office, deciding on a new tack. 'Listen, Olds, there's something I wanted to bring up with you. As you know, you don't actually pay any rent for this garage – in fact, this whole operation makes no direct contribution at all to the municipal budget. Originally I exempted you because of the help you've given in starting everything up, but I think now we'll have to look into the question of some kind of reasonable rent – and of taxation, too, for that matter.' As Olds' fingers began to race irritatingly across the calculators, flicking out a series of messages he was unable to read, Halloway pressed on.

'There's another thing. So much of life here depends on time – hours of work, rates of pay and so on, they're all hitched to the clock. It occurred to me that if we lengthened the hour, without anyone knowing, of course, we would get more work out of people for the same rates of pay. Suppose I ordered in all the clocks and wristwatches, for a free check-up, say, could you readjust them so that they ran a little slower?' Halloway paused, waiting to see if Olds fully appreciated the simplicity of this ingenious scheme. He added, 'Naturally, it would be to everyone's benefit. In fact, by varying the length of the hour, by slowing or speeding up all the clocks, we would have a powerful economic regulator, we'd be able to cut back or encourage inflation, vary pay-rates and productivity. I'm looking ahead, I know, but I already visualize a central radio transmitter beaming out a variable time signal to everyone's clock and wristwatch, so that no one need bother about making the adjustments himself . . .'

Halloway waited for a reply, but the calculators were silent for once, their display panels unlit. Olds was looking up at him with an expression Halloway had never seen before. All the mute's intelligence and judgment were in his eyes, staring at this blond-haired young man as if seeing him clearly for the first time.

Annoyed by his almost disdainful attitude, Halloway was tempted to strike the mute. But at that moment, carried clearly above the drumming of the generators, they heard the squeal of tyres in the road above, and the sounds of breaking glass and a child's scream.





When they reached the street a crowd had already gathered, standing around a white limousine that had swerved across the sidewalk and plunged through the windows of a supermarket. Cans and detergent packs, which Halloway had helped to stack into their display pyramids, were scattered among the broken glass. Stillman's chauffeur, a black-jacketed youth of sixteen, stepped from the car, spitting away his gum in a nervous gesture. Everyone was looking down at two eleven-year-old boys, barely conscious, stretched out in the roadway, and at the dead body of a young girl lying under the limousine between its rear wheels.

As the siren of a police-car wailed towards them Olds pushed through the crowd. He knelt down and held the girl's bloodied wrist. When he carried her away in his arms, pushing brusquely past Halloway, he held the calculator in one hand. Halloway caught a glimpse of its display panel, screaming out a single silent obscenity.

THE NEXT WEEK marked an uneasy interregnum. On the pretext of keeping an eye on everything, Halloway retreated to the commissioner's office, watching the streets for hours on the TV monitor. The death of the girl, the first traffic fatality of the new city, was an event even Halloway was unable to rationalize. He stayed away from the funeral, which was attended by everyone except himself. Olds drove the huge hearse, which he found in a breaker's yard and spent all night refurbishing. Surrounded by an arbour of flowers, the dead child in her lavish hand-carved casket moved away at the head of the procession, followed through the empty streets by all the people of the neighbourhood, everyone at the wheel of his car. Stillman and his entourage wore their darkest gangster suits. Miranda and old Buckmaster, both in black capes, appeared in an ancient open tourer filled with strange wreaths she had prepared from the flowers that Halloway's men had destroyed.

However, much to Halloway's relief everything soon returned to normal, though by some unhappy paradox this first death set off an even greater latent violence. During the following days more and more workers defected from their jobs to join Stillman's entourage, which by now had swollen to a substantial private army. Many of them wore black para-military uniforms. All day the sound of gunfire echoed through the streets as they destroyed hundreds of the deer in the park, driving away the pheasants, quail and wild duck on which Halloway depended to stock the fresh meat counters of the supermarkets. Armed with rifles, they marched up and down the square in parade order, presenting arms beside the files of slaughtered deer. Stillman, now affecting a military tunic and peaked cap, had swapped his limousine for an open-topped half-track, in which he stood to attention, taking the salute.

Halloway tried to laugh off these absurd games as another mental aberration of this convicted murderer, but Stillman's men had begun to disrupt the life of the zone. They strolled in gangs around the supermarkets, helping themselves to whatever they wanted and brushing aside any requests for payment. Taking their cue from this, many of the apartment-house tenants defaulted on their rents. Instead of shopping at the supermarkets, and helping to bolster the faltering economy of the zone, they were breaking into the stores outside the area. Each day there was a further slide towards anarchy, the failure of another generator, an increase in traffic delays and parking offences, and above all a growing conviction that the city was unmanageable.

Faced with this collapse of his dream, worked for with such effort, Halloway decided to reassert his authority. He needed some means of inspiring these

new urban dwellers. Bored by their long hours of repetitive work, most of them did no more in their leisure time than hang around the bars and amusement arcades, driving aimlessly around the streets in their various cars. The influx of new arrivals had begun to fall off, and already the first of the original settlers were packing their bags and drifting off to the suburbs.

AFTER A NIGHT of continuous uproar, filled with the sound of sirens and gunfire, Halloway decided to enlist Buckmaster's help. The old industrialist was the only person he could fall back on. Olds no longer spoke to him – the whole make-believe of teaching the mute to fly had long since lost its credibility. But Buckmaster had been one of the pioneers who created the Twentieth Century, and might well be able to charge everyone with enthusiasm again.

Outside Buckmaster's hotel Halloway hesitated before stepping from his car. His ruthless use of defoliants on Miranda's plant kingdom made him uneasy about seeing her, but he would have to brush this aside.

As he climbed the steps to the hotel entrance he noticed that the revolving door had been converted into a miniature greenhouse. Each of the segments was filled with an unfamiliar plant, with purple flowers and purple-black berries. With a reflex of irritation, Halloway was about to rip them out with his hands, but a brief movement on a balcony above him caught his eye.

Three floors above, Miranda was standing on her balcony and looking down at Halloway, a posy of mantis lilies in her hand. She was wearing a long white dress and white lace veil that Halloway had never seen before, but which he recognized immediately. Gazing up at her, and knowing that she had never been more beautiful, Halloway was suddenly convinced that she was wearing the wedding gown for him. She was waiting for Halloway to come and collect her from the hotel, and then they would cross the square to the cathedral of cars where her father would marry them.

As if to confirm this, Miranda leaned slightly over her balcony, smiling at Halloway and beckoning to him with a white-gloved hand.

When he reached the revolving door the purple flowers and dark berries clustered thickly around him. He was about to push past them when he remembered the posy of lilies in her hand, and the too-eager way in which she had watched him arrive. Then he realized that the plants he was about to brush out of his way, festering here in this glass execution chamber between himself and his bride, were deadly nightshade.

IN THE EARLY AFTERNOON Miranda and her father left the city for good.

That night, as he lay asleep in his apartment, Halloway dreamed that he was standing at an open window overlooking the park. Below him the waist-high grass shivered and seethed. Some deep motion had unsettled the ground, a profound shudder that crossed the entire park. The bushes and brambles, the trees and shrubs, even the lowliest weeds and wild flowers, were beginning to rustle and quiver, straining from the ground. Everywhere branches were waving in an invisible wind, leaves beating at the passing air. Then, by the lake at the centre of the park, a miniature oak broke free, boughs moving like the wings of an ungainly bird. Shaking the earth from its roots, it soared towards Halloway, a hundred feet from the ground. Other trees were following, branches grasping at the air, a million leaves whirling together. As Halloway watched, gripping the window-sill to stop himself from joining them, the whole park suddenly rose upwards, every tree and flower, every blade of grass joining to form an immense sunlit armada that circled above Halloway's head and soared along the rays of the sun. As they moved away across the sky Halloway could see that all over the city the flowers and vines which Miranda had planted were also leaving. A flight of poppies soared past, a crimson carpet followed by an aerial causeway of daisies, petals beating as if they were the cilia of some huge lace-like creature. Halloway looked up from the city, with its now barren stone and dying air. The sky was filled with a legion of flying creatures, a green haze of petals and blossoms free at last to make their way to the welcoming sun.

WHEN HE WOKE the next morning, Halloway went out on to his balcony, uncertain whether the dense vegetation rooted securely to the ground was an illusion of his mind. Later, when he paused briefly at the police-station, the vision of these flying oaks and marigolds, elms and daisies still hung in the air, brighter than the neon facades of the bars and amusement arcades.

Instead of switching off the lights and going to work, people were hanging around the doorways of the bars, watching Halloway across the pin-tables in the arcades. None of the police-force had turned up for duty, and for a moment Halloway felt that the day itself had failed to appear.

Determined now on a confrontation with Stillman, he went back to his car. He was convinced that the former convict was responsible for the collapse of everything he had worked for. Stillman had been drawn here by the limitless opportunities he had seen for cruelty and disruption. He needed a dying city, not a living one, a warm cadaver that he could infest like a maggot.

After locking the police-station, Halloway drove along the park to Stillman's headquarters, a cylindrical art museum with a single spiral ramp that circled upwards to Stillman's audience chamber. Armed guards lounged in their black uniforms around the line of armoured limousines parked outside. They signalled Halloway forward, clearly expecting him. As Halloway walked towards the elevator Stillman was standing in a theatrical pose on the topmost stage.

Their meeting never took place. Half way up, the elevator stopped with an abrupt shudder, its lights failing. Everywhere voices began to shout, a shot was

fired, feet raced past down the ramp. By the time Halloway broke free from the elevator he was the last to leave the darkened building. Stillman and his gang had set off, taking Halloway's car with them.

When he reached the police-station half an hour later an electrical storm was sweeping the streets of the reclamation zone. Cars were stalled bumper to bumper at the intersections. The drivers stood by their vehicles, flinching from the neon signs that were exploding in cascades of molten glass above the bars and restaurants. Everywhere the overloaded circuitry was burning out. Coloured light-bulbs burst and ripped across the ceilings of the amusement arcades. Pin-tables exploded in a chatter of free games, in the supermarkets the first fires were lifting from the freezer cabinets, flames roasting the carcasses of the deer and wild-fowl. The noise of a hundred generators filled the air, turned up by someone to their greatest output.

It took Halloway several hours to restore order. Long before he had turned down the last of the overheated generators, replaced the fuses and put out the most serious of the fires, Halloway knew who had been responsible. Dozens of the pocket calculators lay around the generators in the alleyways and basements, display panels glowing dimly. Olds must have ransacked the business-machine stores, gathering together as many calculators as he could find to cope with his mental crisis. They were scattered in his trail, spinning off from his hyper-active mind.

Wings?

Mixture rich, carburettor heat cold.

Sparrow, wren, robin, hummingbird . . .

Halloway stared down angrily at these fragmentary messages, bulletins to himself that expressed Olds' doubts and anxieties. When Halloway found him he would scream him into submission with one potent word, throw him into a final fit from which he would never recover.

Kiwi, penguin?

Pitch full fine, fuel cocks open.

Starling, swallow, swift . . .

Halloway stamped on the calculators, pulverizing this ascending order of birds. Exhausted by the effort of shutting down the generators, he sat on the floor in the supermarket basement, surrounded by soup cans and the glowing dials.

Climbing.

Flaps down, throttle slightly cracked.

Elizabeth, dead child. No pain.

Blue eyes. Insane.

Partridge, quail, geese, oriole . . . eagle, osprey, falcon . . .

Guessing that he might find the mute in his automobile plant, Halloway ran down the ramp into the basement. But Olds had gone. In a last galvanic spasm, the thirty cars on the production line had been hurled against the concrete wall, and lay heaped across each other in a tangle of chrome and broken glass. On the desk in his office the calculators were laid out neatly to form a last message.

Ol

Old

Olds

Oldsm

Oldsmo

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Oldsmobi

Oldsmobil

OLDSMOBILE!!!

And then, in the drawer where he had kept his antique flying-helmet:

I can – !

Fulmar, albatross, flamingo, frigate-bird, condor . . .

IGNITION!

ABANDONING HIS CAR, Halloway walked through the empty streets, littered with smouldering neon tubes as if a burnt-out rainbow had collapsed across the sidewalks. Already he could see that everyone had gathered in the square, their backs turned to Buckmaster's memorial. They were looking up at the display sign on the newspaper building, the brief message which Olds had left for them repeating itself in a cry of fear, pride and determination.

I CAN FLY! I CAN FLY! I CAN FLY! I CAN FLY!

BY THE TIME Halloway reached the airport the siege was well under way. Stillman and his men surrounded the car-park, crouching behind their limousines and firing at random at the upper floors. There were no signs of Olds, but from the apex of the pyramid of radiator grilles Halloway could see that the powered glider on the roof had been readied for flight. Olds had fitted an under-carriage and tail-wheel to the craft. No longer tethered, it had been moved to the upper end of the canted roof, the two hundred yards of concrete sloping away below the polished propeller.

Under cover of a fusillade of shots, Stillman and three of his men rushed the building and entered the ground floor of the car-park. Ten storeys above them, Olds appeared on the roof, dressed in his antique flying-suit, leather jacket and gaiters. He moved around the aircraft, making some last adjustments to the engine, oblivious of the shooting below.

Twenty minutes later, smoke began to rise from the eighth floor of the car-park, dark billows that lifted towards the roof. Seeing the smoke, Olds stopped and watched it swirl around him. Then, above the sound of gunshots and exploding fuel tanks, Halloway heard the clatter of the aero-engine. The propeller span briskly, pumping the heavy smoke out of its way.

[more →]

Knowing that Olds would be killed if he tried to take off, Halloway ran towards the car-park. Shouting at Stillman's men, he pushed past them to the emergency stairs.

When he reached the eighth floor one of the young guards held him back. At the far end of the sloping concrete floor Olds had built a solid barricade with his four land-cruisers. Unable to climb past it, and with the remainder of the stairway blocked by a pile of generators and electrical equipment, Stillman and his men were setting fire to the cars, shooting into the engine compartments and fuel tanks of these once-cherished sedans and limousines.
'Stillman!' Halloway shouted. 'Let him go! If he tries to fly he'll kill himself!'

But Stillman waved him away. Two of the cars were burning briskly, and he and his men pushed the flaming vehicles up the slope and rammed them into the land-cruisers. Within moments the metal cabins were splitting in the fierce heat. Watching this conflagration begin, Stillman beckoned his men down the slope.

Then, moving down the gutter below the internal balustrade, came a thin stream of fluid, working its way around the old tyres and the piles of leaves and birds' nests. Thinking that this was Olds' pathetic attempt to douse the fire Stillman had started, Halloway grappled with the guard, trying to wrest the shotgun from him. As they struggled together by the staircase he saw that the stream had expanded into a broad sheet, as wide as the sloping floor, moving swiftly like a tidal race. It swilled below the land-cruisers and around the wheels of the burning cars, touched here and there by the nimbus of a flame. The fluid overran Stillman's feet as he and his men turned and ran for their lives, splashing through the fast-moving sluice. In the last seconds, as the whole floor lit up in a sudden bloom of flame, illuminating the running figures trapped in the centre of this sloping furnace, Halloway hurled himself down the staircase. The sounds of explosions followed him to the ground floor.

So Olds had opened the stopcocks on the fuel tanks of the cars on the ninth and tenth floors. When Halloway reached the road the upper three storeys of the garage were aflame. Powerful explosions were ripping apart the limousines, sports-cars and open tourers that Olds had collected so carefully. Window glass and pieces of sharp chrome flicked through the air, landing on the sidewalk around him as he crouched behind an airline van. Fifty feet high, the flames of the burning gasolene rose into a sluggish tower of smoke two hundred yards in diameter.

Most of Stillman's men had driven off, these youths in their black uniforms and large cars frightened by the violence of the explosions. Three others had remained behind, waiting with their rifles raised, but Halloway was certain that both Olds and Stillman had already died.

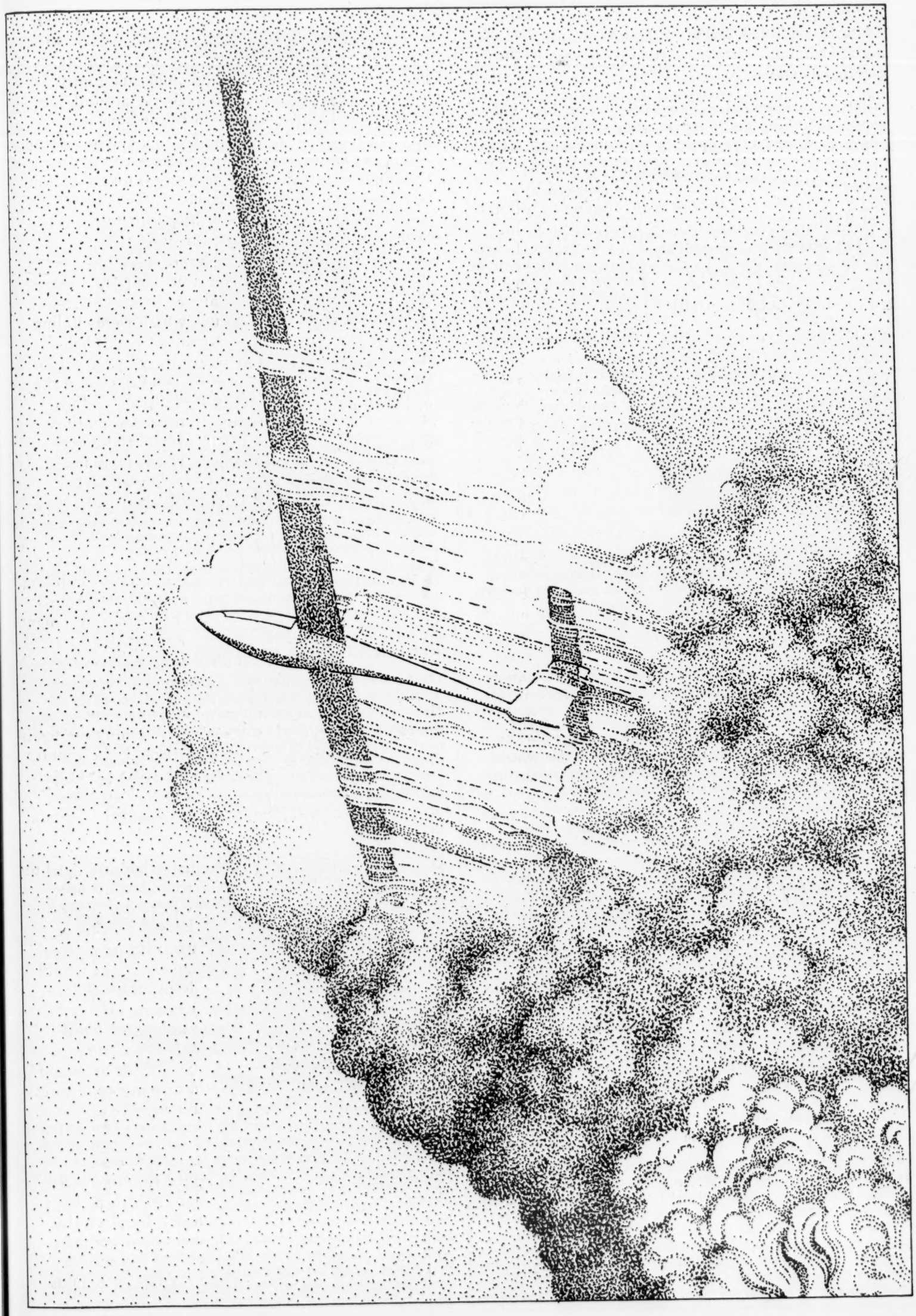
High above him, a propeller whirled through the smoke. The sailplane moved across the roof, lining itself up for take-off. Olds' slim figure was crouched in the cockpit, face hidden by the antique helmet. The engine deepened its roar, and the aircraft with its long drooping wings sped forward down the sloping roof. As it left the building and sailed into the open air it seemed to fall towards the ground, but its wings suddenly climbed on to the light wind crossing the airport. It soared along, engine blaring, a few feet above the cars parked nose-to-tail down the runway, and shook off the oily smoke that still wreathed its wings and fuselage. It flew on steadily, gaining altitude as it cleared the perimeter fence. Moving northwards towards the Sound, it made a careful left-hand turn, three hundred feet above the ground. It set off across the river, wings rocking as Olds tested the controls. Halfway across the river it picked up a flight of wild duck which were circling the city, and then joined a stream of petals half a mile long that was being carried away by the wind. Together, the three flights – the wild duck and the stream of petals, and Olds in his sailplane – flew on to the northwest, parting company when they crossed the ruined suspension bridge. Halloway waited as the sailplane, little more than a point of light reflected from its propeller, climbed higher into the secure sky, and finally vanished on its way westwards across the continent.

WHEN HE HAD DRIVEN back to the city Halloway left his car in the square. Standing beside Buckmaster's memorial, he watched the supermarkets and stores, the bars and amusement arcades close themselves down. Almost everyone had left now, as the young people made their way back to their garden settlements.

Halloway waited until they had all gone. The last of the generators had run out of fuel, dimming the lights in the police station. He walked through the streets, picking his way over the broken glass and burnt-out cables, past dozens of abandoned cars. Discarded banknotes, printed with his own name, drifted along the roadway.

In the space of only a few months he had managed to achieve what had taken this metropolis as a whole more than a hundred and fifty years to do. However, it had all been worth while. He knew now that he would never return to Garden City, with its pastoral calm. In the morning, after he had rested, he would set off on foot, searching for Olds and the sailplane, following the memorials westwards across the continent, until he found the old man again and could help him raise his pyramids of washing-machines, radiator-grilles and typewriters. Somehow he would come to terms with Miranda, and help her to re-forest the cities. Maybe, then, she would wear her wedding dress again for him.

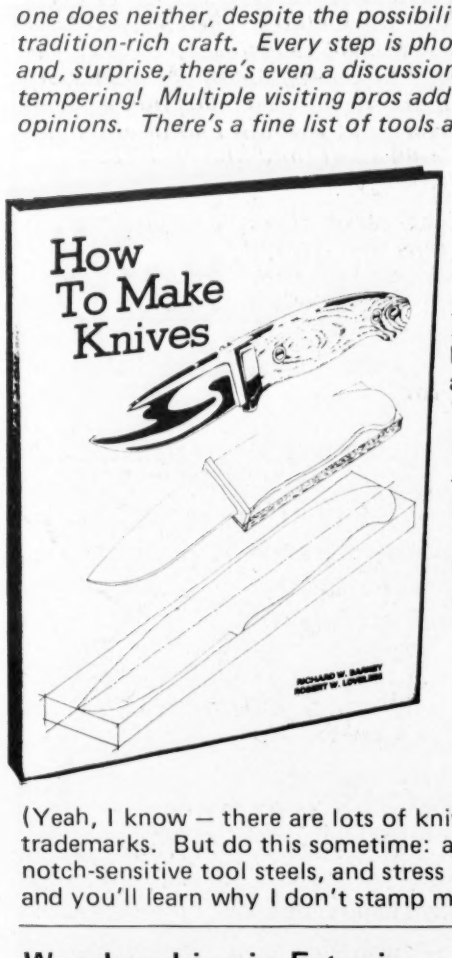
Confident of all this, Halloway set off across the square. Already he was planning the first of a series of huge metal pyramids in his mind, as high perhaps as these skyscrapers, built of airliners, freight trains, walking draglines and missile launchers, larger than anything of which Buckmaster and the Twentieth Century had ever dreamed. And perhaps, too, Olds would teach him how to fly. ■



How to Make Knives

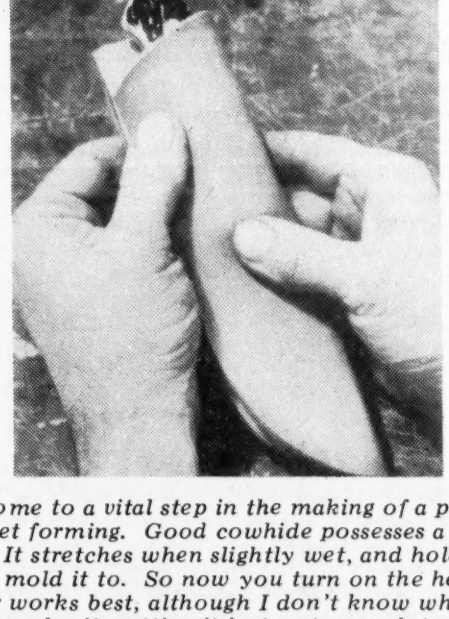
Most how-to books concentrate on mystery or history. This one does neither, despite the possibilities present in an old tradition-rich craft. Every step is photographically served, and, surprise, there's even a discussion of metallurgy and tempering! Multiple visiting pros add the interest of several opinions. There's a fine list of tools and resources too.

—J. Baldwin
[Suggested by John Ellis, Jr.]



How to Make Knives
Richard W. Barney
and Robert W. Loveless
1977; 182 pp.
$10.95 postpaid
from:
Beinfeld Publishing, Inc.
13222 Saticoy Street
N. Hollywood, CA 91605
or Whole Earth

(Yeah, I know — there are lots of knives around with stamped trademarks. But do this sometime: ask a metallurgist about notch-sensitive tool steels, and stress risers, and stuff like that and you'll learn why I don't stamp my blades, ever.)



Now we come to a vital step in the making of a pouch sheath: the first wet forming. Good cowhide possesses a unique property. It stretches when slightly wet, and holds whatever shape you mold it to. So now you turn on the hot water tap (hot water works best, although I don't know why), and put the sheath under it, getting it just wet enough to turn dark in color, but not soaking wet. Fold the sheath side together to form the pocket, and get the knife into it, about in the position you want it to be. Mold the damp leather in against the knife, especially around the guard and around the handle (14). Press the leather against the blade, on each side, enough to get an imprint of the edge on the surface of the cowhide. Be sure to have your hands clean while you're molding the leather, because any dirt or stains you get on the leather during this operation won't come out, period.

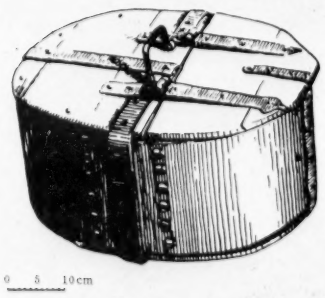
When you are satisfied that you've molded the leather down on the knife to suit you, take the knife out of the wet-formed pouch, and wipe it off dry. Even if your knife is made out of 440C or 154CM, nothing will stain it like hot, wet leather.

Woodworking in Estonia

This highly informative book was the author's thesis project; research began in 1946 and the work was presented in 1955. Viires is concerned with many aspects of peasant woodworking — materials, tools, techniques, historical and sociological context of crafts and craftsworkers. This is one of the few primary source materials available on traditional woodworking. The type and quality of crafts are somewhat similar to those ranging from Scandinavia to the Swiss Alps.

There are some strange translations used, such as "draw knife" for inshave, "planing knife" for drawknife, "spoon chisel" for crooked knife, and "cross axe" for adze. The photographic reproduction is terrible. But the text is superlative and the line drawings help you to put things together. This is our favorite crafts book. Period.

—Drew Langsner
[Suggested by Lee Jaslow]



Traveling chest

Woodworking in Estonia
A. Viires
No. TT68-503-42
1960, 1969; 336 pp.
$10.00 postpaid
from:
NTIS
5285 Port Royal Rd.
Springfield, VA 22161

'After Christmas the spinning wheels were taken to Russia. The price was the same as in Estonia. When winter sealed the Narova river, they went from Smolnitsa across the neck of land there to Podkustavi. From there you could go anywhere — to Oudova or to Plyussi. The big fairs were in Silensk or in Tryagova. The Tryagova fair was famous. It was held on March 8. This was also the last fair of the season. There were often 5 - 6 cartloads on sale at that fair. I once went as far as Domkino, and sold all my spinning wheels before I got there.

Woodland Crafts in Britain

Here is a book to complement J. Geraint Jenkins' excellent **Traditional Country Craftsmen** *(CATALOG, p. 151). Mr. Edlin is a forester, so his approach to country crafts comes through his interest in trees and wood. The work is authorative and has much information available no where else. Chapters are divided by tree species; individual crafts and cross-references are contained within. (In contrast, Jenkins is more interested in tools.)*

—Drew Langsner

Woodland Crafts in Britain
(An Account of the Traditional Uses of Trees and Timbers in the British Countryside)
Herbert L. Edlin
1949, 1973; 182 pp.
$12.50 postpaid
from:
David & Charles, Inc.
North Pomfret, VT 05053
or Whole Earth

In most parts of Britain thatching materials are secured to the roofs of thatched houses or stacks by narrow pegs of wood, usually hazel. One common name for these is *spars*, but they have many others. *Spics, speekes, spikes, speuks, spits, splints, sparrows, sparrods, sprees, tangs, spelks, gads, privets, brotches, brooches, broaches, pricks, withynecks, ledgers,* and *roovers* have all been recorded. Celtic names are *scolp, scallop,* and *sgilb* in Wales, *sgolb* in Ireland and western Scotland, and *scob, scope, scoub* or *scrobe* in eastern Scotland and in Northumberland; these last eight variants illustrate how any word may change when it is seldom written down, even though it be current coin in the mouths of many countrymen.

Reader's Digest Complete Guide to Sewing

Easily the one book I would recommend for any home sewer, whether beginner or accomplished old-timer. It's much better than the previous champion, the Vogue Sewing Book *(EPILOG p. 574). Tools, methods, and techniques are covered with thorough and easy-to-follow instructions and every option and variation imaginable. The sewing machine section, compiled with the aid of Singer, is a comprehensive overview of electric sewing machines, how to use, maintain, and understand them. Sections on special techniques for men's and children's clothing, and sewing for the home, are included.*

—Evelyn Eldridge

Reader's Digest Complete Guide to Sewing
1976; 528 pp.

$16.95 postpaid
from:
The Reader's Digest Association, Inc.
Pleasantville, NY 10570
or Whole Earth

Making garments easy to put on and take off

Elasticized pull-on pants and skirts can be managed by even young toddlers (sewing is easy, too). If garment front and back are different, mark back with ribbon or tape.

Large buttons are a great incentive for do-it-yourself dressing, because they don't take much dexterity and are easy for little fingers to grasp. Sew buttons very securely.

Shears and scissors

Iron Horse Antiques

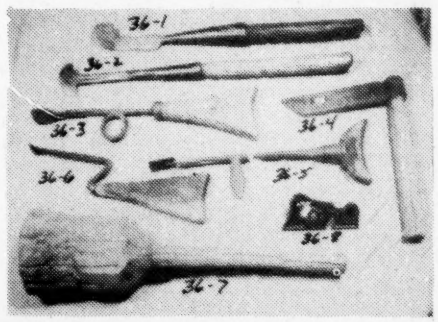
Iron Horse Antiques primarily serves as a mail-order outlet for books on traditional tools and crafts. Their 1977 catalog offers one of the most comprehensive listings for tool collectors and craft people. As their catalog states, "No books on remodeling your kitchen, or how to build a dog house out of one 4 X 8 sheet of plywood," but you will find titles on woodturning, leatherworking, blacksmithing, the history of tools, and industrial archaeology.

In addition to the mail-order service, Iron Horse also deals in antique tools, and from time to time holds auctions. Subscribers to the tool catalog also receive the auction catalog. Mail bids are accepted if accompanied with a deposit.

—Pete Hartman

Iron Horse Antiques, Inc.
Catalog
$6.00 /year (3 issues)
(back issues $2.50 each)

from:
Iron Horse Antiques
RD No. 2
Poultney, VT 05764



36-1 Bark spud. (43AD) $8.00
36-2 Hand forged bark spud. (103AD) $15.00
36-3 Hand forged buttriss. (35383AD32) $20.00
36-4 9 inch froe with original handle. (35733AD32) $20.00
36-5 Unusual hand forged buttriss. (35253AD35) $25.00
36-6 Very simple hand forged buttriss. (35653AD32) $18.00
36-7 Large froe maul. 23½ inches long by 6 inch diameter. (323AD) $28.00
36-8 Stanley No. 95 block trimming plane. Nearly new. (35793AD40) $36.00

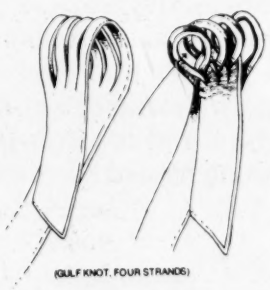
Australian Traditional Bush Crafts

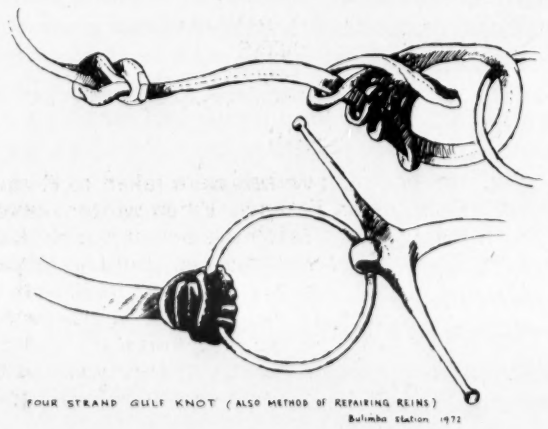
Craft and survival skills from down under. Housing, furniture, leather working and net making, always with only the very simplest of tools. Though most of the material derives from Australia's European pioneers, they obviously learned a thing or two from the Aborigines. Nicely illustrated by the author.

—Richard Nilsen

Australian Traditional Bush Crafts
Ron Edwards
1975; 143 pp.
$6.95 postpaid

from:
Schocken Books, Inc.
200 Madison Avenue
New York, NY 10016
or Whole Earth


(GULF KNOT, FOUR STRANDS)


FOUR STRAND GULF KNOT (ALSO METHOD OF REPAIRING REINS)
Bulimba Station 1972

Wilderness Plots

BY SCOTT SANDERS

Illustrations by G. Russ Youngreen

1

THE ROAD TO OHIO was strewn with many a hazard. When he set out from his father's home in Exeter, during the autumn of 1799, Benjamin Bigsby had thought New Hampshire was a wild place. But Vermont turned out to be worse, the corduroy roads hobbling one ox and shattering his cart. No sooner had he repaired the cart and rattled onward than he found that upstate New York was worse still, with all the rivers flooded and the Indians astir. He built a raft to float one river, had to build another twelve miles further on. The Indians he bought off with gifts of iron tools, keeping for himself only the froes and axes he would need to build a boat when he reached Lake Ontario, and to clear land when he reached Ohio. Snow began falling as he drove the last peg into his boat on Gerondaquet Bay. By the time he reached the mouth of the Niagara, clinging to the shoreline which he could barely make out through a blizzard, he found the river strangled with chunks of ice. Nothing he had been told about the falls prepared him for their violent height or force. Poling his way upriver by shoving against blocks of ice, Bigsby watched the avalanche of water for half a day before he resigned himself to going ashore, dismantling the boat, and hauling it board-by-board (along with all his seed and tools) onto the plateau above the falls. All the while he tugged at the ropes, spray froze on his fingers and face. In his reassembled boat he poled his way to the mouth of Lake Erie, where a snowstorm and thicker fields of ice forced him ashore once again. When the weather cleared he picked his way amidst the ice to Cleveland, which consisted of one log cabin at the mouth of the Cuyahoga River. The resident of Cleveland advised him that the river, where it was not frozen, was riddled with rapids. Since Bigsby's land, bought from a speculator back in New Hampshire, lay seventeen miles further inland, he left his goods with the resident of Cleveland, and chopped a road across country. The road cut, he recovered his goods, built a sled and dragged all the seed and tools and dried food atop the crusted snow to the clearing he had made on his own land, at a place he had named, Endurance.

AUTHOR'S NOTE

I have scratched around in the pioneer history of Ohio (the period from the end of the Revolution in 1781 until the coming of railroads in the 1850s), partly because I was reared in that state and am fascinated by the ways in which its lands were settled, partly because I am convinced that I will find spiritual ancestors wherever I dig. Whenever I turned up a character whose exploits or sufferings appealed to me, I wrote a narrative about him or her. Often I had no more than a sentence to work from, rarely more than a paragraph, because the people who appealed to me most were the obscure and forgotten ones, whose names show up only in the pioneer chronicles, where they are recorded on account of some deed, some wildness, some quirk of personality.

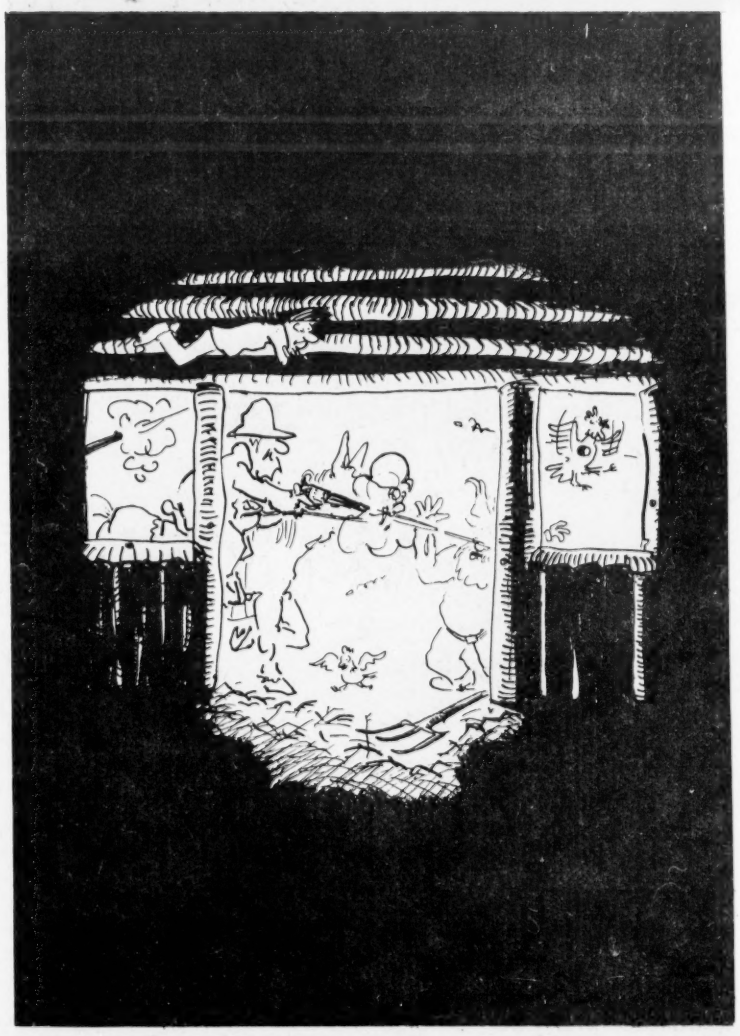
The tales which follow, therefore, are fictional elaborations of real events, stories spun around historical personalities. They resurrect the real names, which are more bizarre than anything I could invent, and they also resurrect, I hope the spirit of these lost ancestors.

The place names, the names of rivers and lakes and towns, are the actual ones lifted from histories, visible on any map of Ohio. The only exceptions to this are the few references to Pilgrim County, with its market town of Roma, its Gutty Swamp and Bone Creek: these names are my own invention, drawn from a fictional county in northeastern Ohio where I have set two novels, and where I plan to set future ones.

—Scott Sanders
Department of English
Indiana University

2

THE FIRST CHILD BORN north of the Ohio River to American parents was a patriot before the fact, arriving on the fourth of July, 1773, exactly three years before that date bore any uncommon weight on the calendar. The child's name was John L. Roth, handed down from his father, who had not worn it out during all his journeys from Austria in the Old Country to these heathen Northwest Territories in the New. Roth the elder had been kindled into evangelical flame by the spark of a vanished saint in the far away land of Moravia, and neither ocean crossing nor seven winters in the wilderness preaching among the Indians had quenched it. His message to the forest people was simple: abandon war, give up all strife, turn like children to Christ. Roth the younger was born therefore into a village of ancient children. They had given up the skin houses in which they had migrated like birds with changes in weather. Now like white men they built log cabins, meaning to live fixed on the land as trees lived, meaning to stake themselves into the soil like the fish they buried in the hills of maize. Rocking in a hammock, the infant Roth once heard an old man mutter to an oak, "Forgive me, tree, we must live in you as the grey squirrels do," before chopping it down. Grown against all odds to become a boy of nine, Roth the younger was climbing on the cabin built of that oak, climbing in search of a spirit who lived in the roof, when a crowd of white men arrived on horses. Come out, they shouted, come out, we want to trade with you. And so the children of Roth the elder, all except his only son by blood, shuffled into the ring of horses, muttering in their acquired language. True to their learning they did not run or



even raise their fists when the white men shot them down. Roth the younger, first born American in this territory, clung to the roofbeam, listening.

[more →]

3

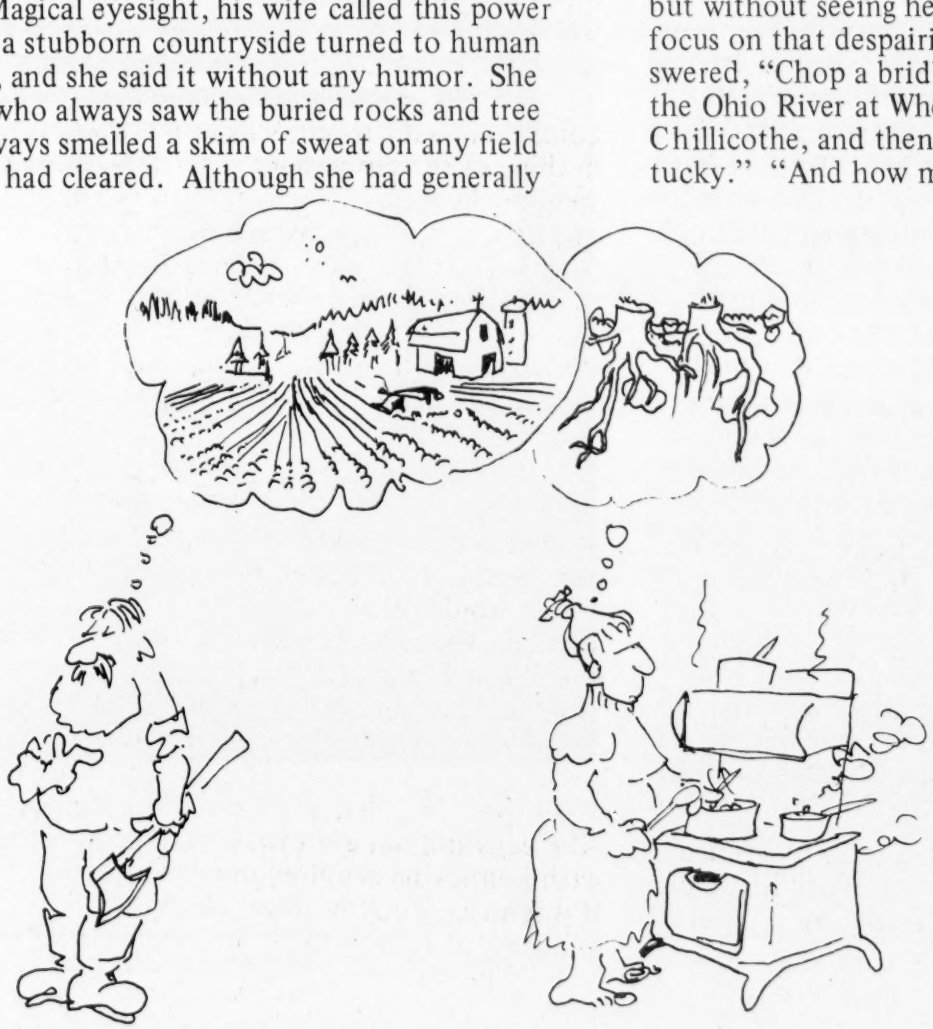
THE GOVERNOR OF THE NORTHWEST not having arrived at the fort, whether on account of drinking or whoring or gambling no one could guess, Jonathan Meigs took it upon himself to draft a code of laws which he nailed to an elm tree:

No Wimmen Anywheres
No Fires Inside
No Guns Under Beds
Not Much Licker
No Mucking with Injians

By thrashing eight soldiers personally, shackling three to the water wagon and breaking the arm and collarbone, respectively, of two others, Meigs saved the fort from anarchy. At his command a canal was dug and lined with sandstone to carry water from the river. He hefted a shovel himself, and later he hefted an axe to help the men strip rings of bark from trees which had been doomed for a clearing. The clearing, he knew, would feed them all with corn and their horses with oats if only the stumps were burnt out before spring. So he carried a pine-tar torch himself from stump to stump. In the still air, trunks of smoke rose from every stump like a ghostly forest. The men with keenest eyes Meigs sent out hunting for anything large with a skin around it, and those whose eyes were poor, the wasters of lead, he set to tanning hides and sewing breeches. Meigs himself peeled oak bark and gathered gall nuts for tanning, so that he could keep an eye on the hunters in the woods and the tanners in the fort. Three men he sent back over the mountains for a herd of sheep, which they were to steal if necessary, in order to supply his commonwealth with mutton and wool. While they were gone he planted flax so that his men might wear linen mixed with their wool, and he set about building a loom from memory of his mother's. Upon arrival at the fort, therefore, the Governor of the Northwest found no chaos, no hunger or cold, no lack of houses – no need of him at all. Reading the signature at the bottom of the sheet of laws, the Governor promptly ordered six men to nail Jonathan Meigs by his jerkin to the elm tree, which they did.

6

EBENEZER ZANE'S SECRET was having seven grown sons, each of whom owned an axe and gazed at the world with the eyes of dreamers. His own eyes had a habit of turning forest into tilled field, seeing corduroy roads march through swamps. He could look at stony land and see it channeled by canals. Believing neither in rock nor tree root because they were hidden beneath the soil, Zane imagined plows cutting meadows which other men had abandoned. Magical eyesight, his wife called this power of seeing a stubborn countryside turned to human purposes, and she said it without any humor. She was one who always saw the buried rocks and tree roots, always smelled a skim of sweat on any field that men had cleared. Although she had generally given up screaming in favor of a silent hammering of her rage into bread dough or cornmeal, since her seven sons, like her husband, walked out of the house whenever she challenged their harebrained schemes, when she heard about the bridlepath she screamed again. Her suspicions were raised when she found all eight men squatting in the shade, passing whetstones from hand to hand, sharpening their axes. "What are you fixing to do, Eben?" Looking up from his honing, but without seeing her, without bringing his eyes to focus on that despairing face before him, Zane answered, "Chop a bridlepath for the government from the Ohio River at Wheeling across the Territory to Chillicothe, and then down to Limestone in Kentucky." "And how many hundred miles of chopping is that?" "I won't know till we walk it." They did walk it, and chop it too, never seeing the trees before them but always an open path. They camped wherever the previous day's axework had led them. They rose each morning to wrap callused hands around the hickory handles and swung in time to songs that Ebenezer sang. In exchange for a grant of four hundred acres, the government now could send marshalls and justices on horseback deeper into the wilderness on Zane's bridlepath. Because of Zane and his seven sons with their visionary eyes, the mails soon opened through his path their seepage of letters.



7

THE GRAVEST MISTAKE the Indians made was suffering any white man who had once seen their plantation to escape with his tongue in his head. Instead they set the spy free, thinking that word of their wealth and might would frighten the army away. But when the raggedy spy arrived panting at the general's feet to describe the thousand acres of peaches and apples, of corn and maize, Gen. Anthony Wayne rose to saddle his horse, knowing that he had found at last the Indians' soft belly. Stab them there, hard, and their will to resist the advance of white men would bleed away. He rode the bounds of his encampment, rousing his army with promises of fresh fruit at the end of the next day's fighting. All night, under the linsey-woolsey tents, men dreamed of boughs clustered with apples, heavy with peaches, and Gen. Wayne dreamed among them. This was no city of gold, such as the Spaniards and English had stumbled upon further west; this was something altogether more valuable – fertile land already cleared of forest and broken to the plow. In the morning, when he glimpsed from a neighboring hill the mosaic of Indian gardens, saw the pruned orchards, the earth black between streaks of green, every inch of it churned by hand, when he traced the web of ditches and footpaths, Wayne hesitated for several minutes whether to invade such an orderly place. But the men shuffled restlessly behind him, with visions of fruit in their heads. They could tend this plantation with as much artful husbandry as the Indians had shown, the general told himself. Yet as he raised his arm in signal to advance, as he watched the first soldiers trample through the rows of beans, their shoulders catching on the lower limbs of peach trees, Wayne knew better. After his victory, which the army celebrated by tearing boughs full of apples from the trees, settlers called the place Defiance.

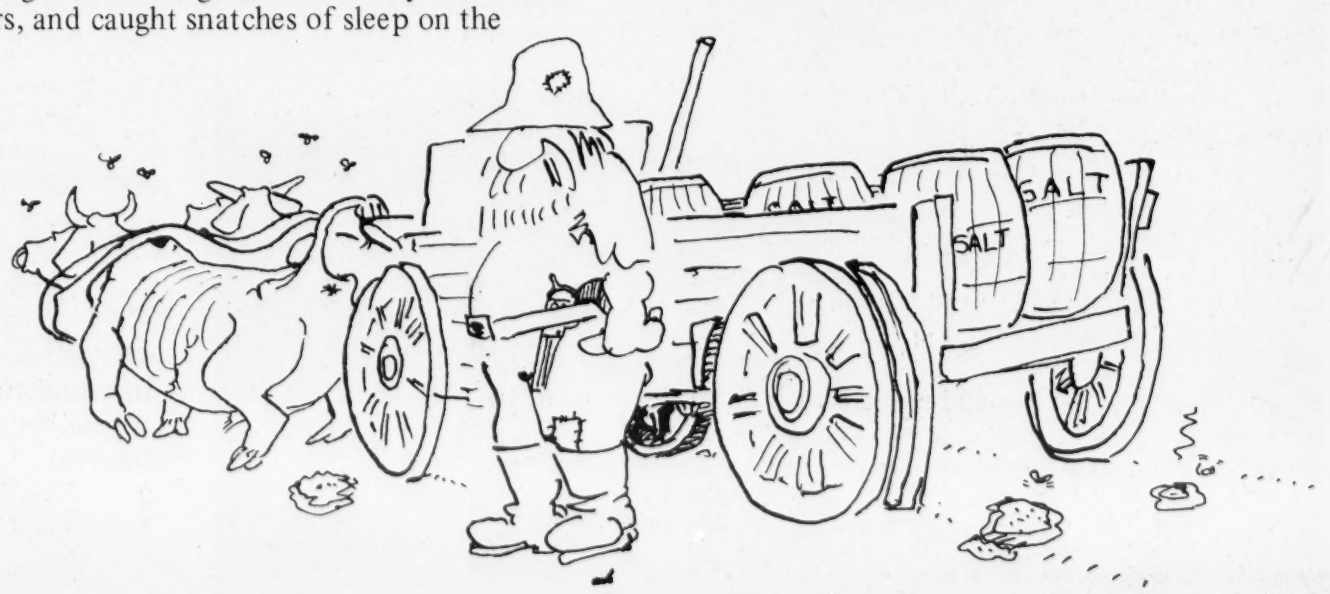
9

TIRING OF HIS SQUAW who fed his supper to the dogs if he was half a minute late in sitting down, Jonathan Alder yearned for white people. Besides, she never washed, and at night she crept out to join the sweaty dancing. Alder was not overclean himself, but that was a matter between himself and his own nose. From the day when she found him in Gutty Swamp with his leg broken and had dragged him home, slung upon her rawhide dress, herself going naked, she had always done whatever she took it into her mind to do. If she wanted to hunt bear, she would sneak out to hunt bear, leaving him four days with no one to cook his food or wash his feet. If she did not want to hear what he was saying to her, she would clap hands over her ears and turn away. To tame her he decided to marry her, but the ceremony had to wait eleven days because she was fasting on a hilltop. When she descended, and succumbed to the ritual, her eyes were more flighty than ever. As a wife she was more wayward, sleeping through the day and staying up all night to chant, piling rotted scraps of

food on the floor. In the midst of making love she would slip into trances, trances which Alder knew had nothing to do with himself. She was too strong to beat, too dreamy to shout into obedience. So by the first spring Alder began thinking hungrily of his wife back in the white settlement. The night he chose to desert his squaw, she left him first, stalking into the hills with frenzied eyes. His own wife welcomed him back by cooking him breakfast, saying nothing of the seven months gone by since he vanished in search of muskrats into Gutty Swamp. She had reckoned he would turn up. His children soon knew him again, and hung about his knees. And the minister, asked in secret about the marriage to the squaw, advised that it meant nothing, since it was an Indian ceremony, of no consequence to God.

12

BECAUSE HIS FATHER'S HOUSE was fortified, Joseph Vance came to know all the neighbors, who scurried there in time of troubles. Troubles there were aplenty, either from white men or Indians or beasts, so neighbors spent a good deal of time firing muskets from slits in the log walls. Watching them as a child, Vance observed two things: their love of guns and their need for salt. By the time he turned fifteen in 1796, he had earned enough from plowing and woodchopping to buy himself a yoke of oxen, a wagon, and seven barrels of salt, with which he set out on a speculative tour through the settlements. Everywhere he went people bought his salt. But each settled clearing in the woods was separated from the next by hours of thickets, days of swamp and flooded rivers, weeks of forest. Bones showed through the oxen's hide. Vance himself grew stony about the eyes. During the day he hacked his way forward through briars, or waited beside swollen rivers for the waters to fall. By night he fed huge fires to terrify the wolves and panthers, and caught snatches of sleep on the ground beside his oxen. Occasionally a mountain lion would brave the fire to creep into camp, and Vance would rouse from sleep to shoot it. He persevered. Wherever he drove his salt, he carved his name into doorposts. When his seven barrels were empty he bought land upon Mad River, but kept aside enough money to buy seven more barrels of salt and seven of lead, with which he set out again upon his speculative rounds. He found that people would buy rifle balls and salt even when they lacked shoes. After each journey he acquired more land. For such a man it was an easy matter to get elected Captain of a rifle company at twenty-three, lead men against the Indians in the War of 1812, become supplier to the Northwestern army in 1817. People who remembered his steadfast eyes above the gaunt oxen, his cup filled with salt, his name upon the doorpost, elected him to the state Legislature, and then to Congress, and then in his sixty-fourth year to the Governorship. In every office he served shrewdly. ■



TWO DANGLING-ANIMAL STORIES AND A HEAVY BEAR STORY

by J.D. Smith

Last depression chicken fishing

My dad is a railroader. He tells the story of being a young and hungry railroader during the thirties who rented a room over a chickenyard, and worked the nightshift. He'd set out trot lines from his window, bait them with canned corn, and let the chicken hook itself. He claims you had to be pretty fast to get one up to the second floor before it made much noise.

Dog Fishing

Dave Dewey invented a good city sport, involving a surf rod, spinning reel, lots of good line, and a bone. Most dogs like some form of tug-of-war, so you find an alley and cast out into it, wait for a dog to come along, and try to reel him in before he breaks the line or lets go of the bone. Or you can try trolling from the back of a pickup truck.

The Bear and the Pointed Stick

(Told to me by Gene Fuzzell, retired Sheriff of Idaho County, Idaho.)

"Word came down off of Marshall Mountain that Old Peterson had run into some trouble, so I rode up there one day, and as I came up over the top of the ridge and down onto what used to be Peterson's cabin, right there to the east of the house I found a beartrap cabled to four trees with a yearling bear in it, dead and bloated about a week, and a few chunks of dog-meat scattered around like Peterson and his dogs had run into trouble alright. There was plenty of big bear sign and the old man's bootmarks.

"I guess the only gun Peterson owned was an air pistol for the packrats, because next to the trapped bear I found a little lodgepole about twelve foot long with a sharpened spike on the end of it, held down by two hose clamps. Got to looking around and started finding pellets from his pistol too, so I started tracking him and the big bear. Didn't take long, 'cause the pellets were in a box in his shirtpocket. As he started running along the hillside, he started spilling pellets.

"His head was laying a couple of feet from his body, and his left arm was tucked right into his chest, like a lefthanded pledge of allegiance. The folks at the hospital didn't like it much when I had him x-rayed for lead.

"What I figure happened was that either Peterson was awful hungry for bear meat or the big bear had been bothering him so much that he figured to trap it and just let it starve to death, but he caught a little one by mistake, and it was crying so much that Peterson was worried his claim would fill up with bears. A bear will go to trouble just like a dog will go to a dogfight. So Peterson figured to kill the little bear with a pointed stick, and about the time he got the job half done, the other bear showed up and was mad enough to rip him from asshole to elbow. There's talk that there's ore on that side of the mountain that runs forty ounces to a ton gold, and thirty silver."

Black bear story

The Appalachian trail runs from Georgia to Maine, and goes right through the heart of the Appalachian Mountains. It's beautiful country, and has abundant wildlife. Including bears.

Now the Appalachian bears are not grizzlies, but blacks. Unlike their northwestern cousins, black bears are normally harmless; it is extremely rare for one to attack a human. Black bears don't have to be nasty. Black bears are smart.

Picture: a novice backpacker on the Appalachian trail, hiking happily along. Suddenly he hears a noise behind him, and turns to see a bear coming up the trail fifty feet behind him, matching his pace step for step. He's frightened, but knows enough to stay calm. He does, however, increase his pace.

So does the bear.

The hiker goes on for a ways, and eventually realizes that that bear is still fifty feet behind him, and still coming. He speeds up a bit more. And, of course, so does the bear.

Half a mile later our hero is really getting worried. He breaks into a slow trot.

Bad move. He has a thirty-five pound pack on his back, and his follower does not. The bear easily matches his pace.

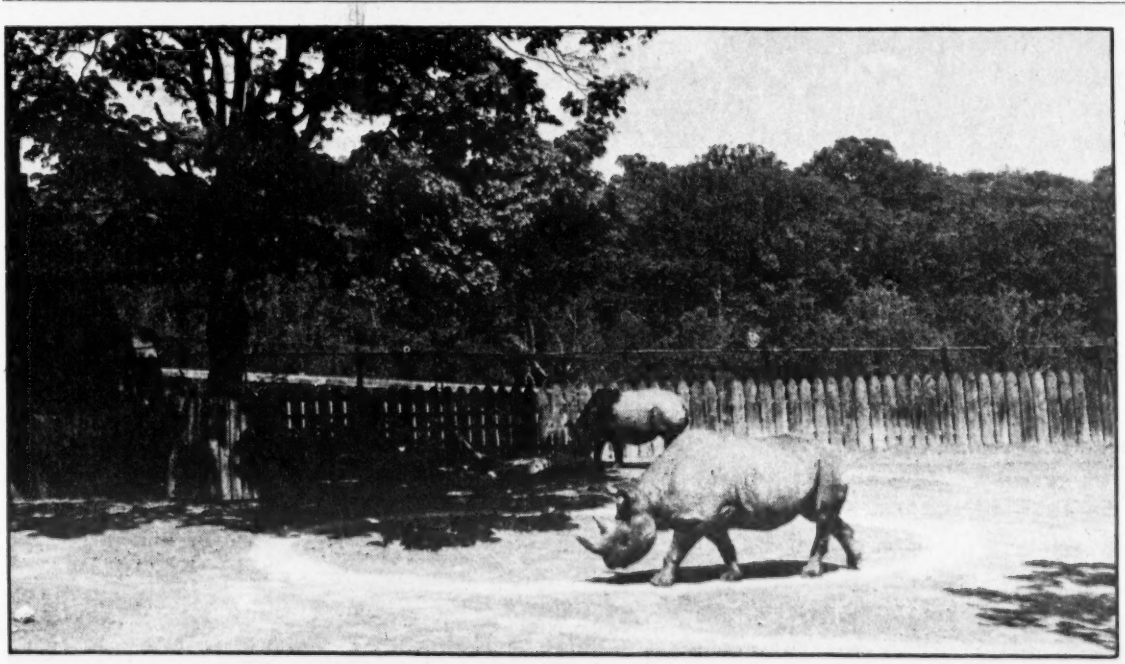
By now, the hiker is close to exhaustion, and really getting scared. He glances back once more, and seeing that his follower is still fifty feet back and still coming, he decides it is time to panic. He throws off his pack and takes off running.

This is exactly what our friend the bear has had in mind. He shambles on up to the abandoned backpack, and while the hiker crashes off through the underbrush, he casually helps himself to whatever groceries the thoroughly conned back-packer had been carrying with him.

I got this story from a friend who got it in turn from a park ranger working on the trail. The ranger said that it was a favorite trick of the bears, and it happened quite regularly.

Because, like I said, black bears are smart.

Michael McClelland
Anderson, South Carolina



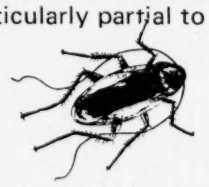
Science News

Although moved to a much larger enclosure, rhinocerous paces size of his old cage.

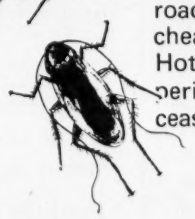
An awful roach story

Your two cockroach letters reminded me of my encounter with roaches. In 1939 my mother and I sailed on a small coast steamer from Chefoo to Shanghai, on the way home from a summer vacation. The first night out I ate supper at the children's sitting, put on my pyjamas and went to bed. My mother left to have her meal with the adults. After reading for a while I turned off the light and settled down to sleep. It was hot, so I left the covers off. After the light had been off for about a minute I gradually became aware of a soft tickly feeling through my hair, over my pyjamas, and concentrating especially on my toenails and fingernails. I switched on the light, and surprised about 100 cockroaches which were nibbling on my hair and nails and climbing over my body. Well, maybe not 100 but lots, anyway. I vaulted energetically from the top bunk to the floor and spent the next three minutes shaking every part of my body, clothes and hair and yelling "Eesh! Eesh!" (the current version of "yuck.") The roaches disappeared; I was too upset to notice where they'd gone. I climbed back into the bunk and turned off the light again. This time they didn't wait at all. The light went off, the cockroaches started nibbling, and I went into my jumping and yelling number again. I was an experienced enough traveler to know how to get the cabin steward in an emergency, but I was so tired and upset that all I could think of was finding my mother. I ran into the dining room barefoot and called out loudly "Mummy! The cockroaches are eating me!" My mother, embarassed, hustled me out of the dining room. Together we found the cabin steward who filled our cabin with the fumes of Flit, pumped out of a little glass Flit-gun. The cockroaches left, probably to try their luck next door, and I was able to get some sleep.

For years I've told this story to people. I ran into some skepticism about whether the roaches were actually eating my hair and nails or were just checking me out. After a while I began to doubt my own memory; however I recently read (in a children's science book about roaches) that they are particularly partial to eating hair and nail parings.



Dorothy Horn
San Jose, California



Re: cockroaches

1) According to NPR, boric acid powder (available in the eyewash section of the drugstore) kills cockroaches. But unlike chemical poisons, it is not detectable by the roach, so he/she can't learn to avoid it.

2) A friend staying in an apartment with a heat-lamp discovered that cockroaches apparently can't see infrared light, because they don't scatter when the light gets switched on. So how about an infrared flashlight for roach hunting?

George Beekman
Corvallis, Oregon

Re: Cockroach war

Simplest home solution I've found is a trap. Just put some powdered scrub cleanser like Ajax in a small, smooth-sided glass set up next to a wall of a shelf in cockroach country of your kitchen. Bait trap with one cockroach killed by hand, and within a day or two many will begin to climb in to investigate. Trapped! It works.

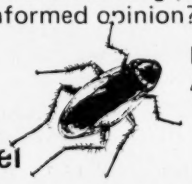
Rob Elmore
New York, New York

What's the best roach cat?

I offer a method of cockroach control that might seem obvious or simple, but which has worked very well indeed over the years. Get a cat! Cats seem to love them and have the patience required to hunt them down. Details are important: the cat must be female, males have little or no effective hunting instinct. (This brings on the problem of baby cats, of course.) We usually confine the cat to the kitchen area during the night (which protects the cat from cat-eating predators and to some extent from amorous males) and this really does a fine job of keeping the kitchen roach-free. This confine-the-cat-in-the-kitchen scheme also seems to have worked for rats, at least we do not have the rat problem our catless neighbors seem to have. It may be that the small Thai cats are a bit more ferocious than some American breeds. Maybe a cat lover could suggest certain breeds for this application.

It is also the custom in America to neuter cats, and it has been suggested to me that this practice might mute their hunting instincts. I have thought that maybe (at slight extra cost) the equivalent of a tubular ligature could be performed where the prospect of kittens is intolerable, instead of the more common radical surgery. In this way the cat's sexuality would be retained, with only the slight problem of "heat" to be endured in exchange for undiminished hunting drive. I have never discussed this proposal with a veterinarian, though. Is there a veterinarian among your readers that might be able to give us an informed opinion?

Rev. E. John DeHaven
APO Seattle, Washington



Roach hotel

I refer potential "roachers" to a product marketed by Black Flag Co. that works. Its name is (no fooling) "Roach Hotel." Very simply a cardboard box affair with a very attractive sticky 'goo' in it — one simply places a "Roach Hotel" on the counter and smiles — no dead pets, plants, fish, or lingering odors which probably cause cancer in rats — you simply throw the hotel out when there are no vacancies — i.e., full of roaches — the Roach Hotels cost $ .69 for two — which is cheaper than monopoly and more fun to play with . . . the Hotel's caught a total of about 180 roaches over a two week period. And since their "emplacement" the problem has ceased to be a problem.

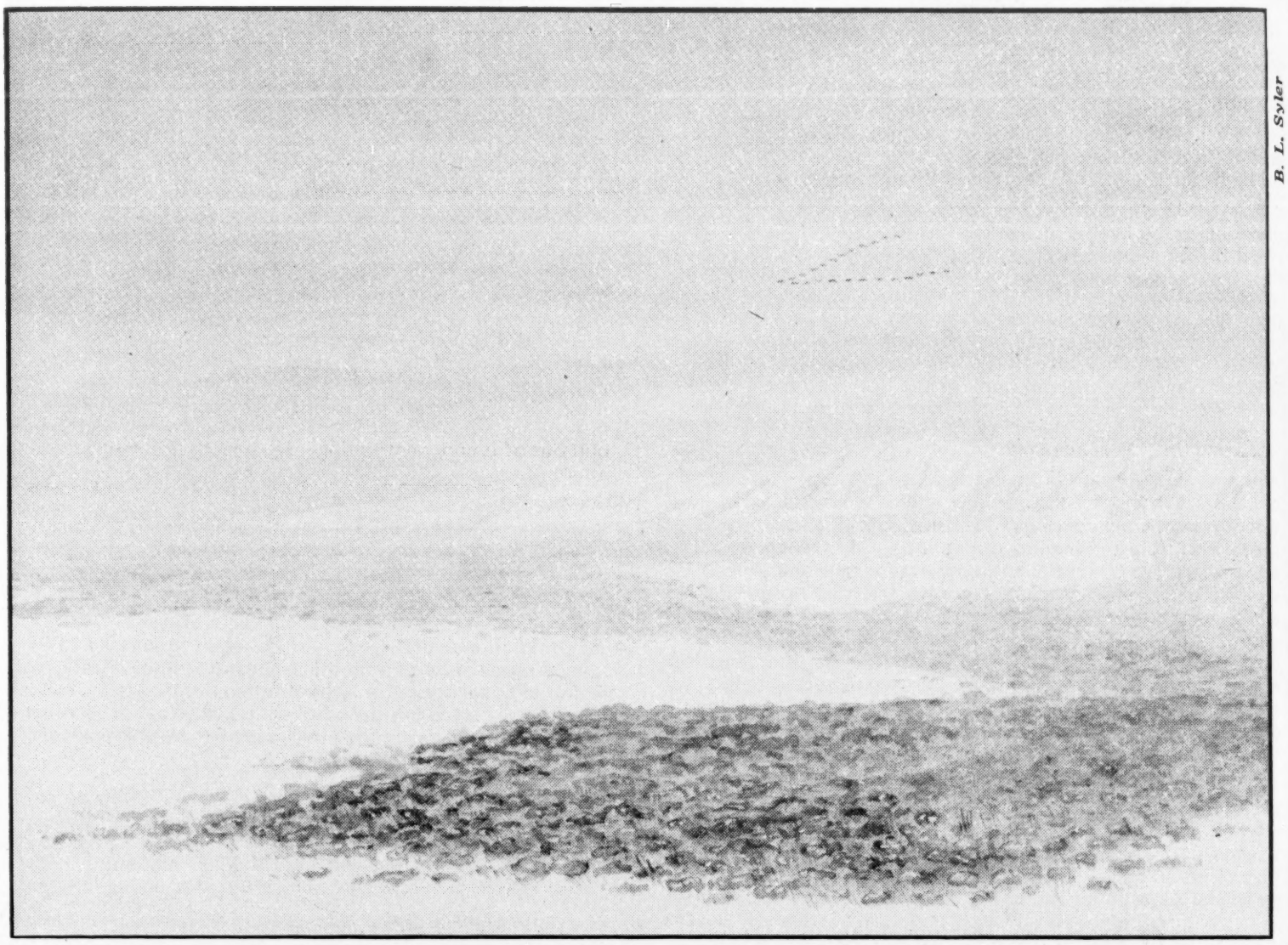
Don Leichtling
Takoma Park, MD

Bug Joke

An entomologist was sitting at a drafting table graphed off in inches, working on a design for a mosquito trap, when an insect jumped in the middle of his plans. He tapped the edge of the table and noticed that the insect jumped exactly six inches. He entered this fact on a piece of paper, caught the bug, tore off one of its legs, tapped again, and, sure enough, the jump was only five inches. He entered that fact, tore off another leg, and the bug only jumped four inches with the new tapping. He carried this investigation down through three, two, and one leg, carefully tapping, observing, and entering. Finally, he tore off the last leg, tapped, and the bug just lay there. He tapped again, with the same result, so he entered in his journal: "With all legs removed, the insect is apparently deaf."

—J. D. Smith
Bugdorf, Idaho

CQ solicits animal stories, pays $10 on publication.



B. L. Syler

THE CUSTER WOLF

BY PATRICK HOLLAND

October.
October again shaking out
north of me, noise in the stone; it sings
as the earth shrinks up, freezing back all
that is warm. Receding, brittle to the touch
as is earthglas, are salamander and stone:
winter-lodged in deep places as they suc
cumb again, to ice's vestigial reach.

So it is crisis that moves us, at least
that's what would be the lesson locally learned.

I

The Wolf:
He is a small, white renegade off the reservation.
Wolves were moved to canada by 1900, officially
and of course, without asking, were wagons brought
furs caught and plows and lumber built up ranches.
Cattle and pigs and the horse came: war horse,
wagon horse, dead horse the car came.

For nine years the hunt ran 'round the country
gaining more fame each year; each year bigger
than the last and each year new hunters
set out following their leads:
Wolf at Horse's-Shoulder-Standing,
wolf and two coyotes reaching to tear
the ranch dogs up, avoiding barnyard guns.
Everything dead from the strychnine dosed suet pellets
and carcasses; the wise ones never eating of the same kill twice.

Through the seasons the traps gather rust or crush
the bone of lesser legs, those whose habits kept them
bound to the same path where the stones sang loudest
or could be read by the cold white-eyed creature
whose scent in the same cave for seven hundred,
hundred years. The simplest answer to what moves us
lasts, lives without books in bones beneath beds and
at night, a true pigmentation rises of survival's eye;
a blue borealis, like the rapidly silent nerve, lights up:
the electric rock alive, completely crystalline. O' abyssal
stone of slow process, viscous magma rose up from below;
to the north the iron laccolith.

Here is the ground plutonic. This place of blackened hills
where the river Cheyenne drains out the blood of all of them
out hunting for the wolf.

"A fisherman, night watchman, and wanderer from South Dakota." That's Patrick Holland described by fellow California poet, L. MacAdams. Holland's book of poetry, **Horses in November**, *is published by Cranium Press, 243 Collins Street, San Francisco, CA 94118 ($4).*

–Anne Herbert

II

Hunter Williams has set out to hunt
the Custer Wolf and coyotes down
summer brown and western edge
in the dark hills of Dakota.
March to begin, October to end
for the first wolf, second to one.
With his traps just cleaned
and his gun oiled, in the car:
just down from up around
the Grand river, or Jump Off
country, where Three-Toes bit it
for the last time. With the worst
wolf gone, came the lesser challenge.

Enough that he knew of the wolf:
enough to bring the smear-scent
of a she one, spring-caught
in the steel trap. Steel
of a monstrous decade of war,
steel taken up and thrown in consumate
fury, thrown all over the land; sometimes
and in just the right places, enough to destroy any life.

No longer is winter wolves' dominion,
nor has death much meaning. Enough
to note that the image completes itself;
sinks with the season and setting constellation:
the Bull, whose neck-stars dying signal another end.
And the people went inside, locked their doors, resigned
to a night of dying cattle.

Or, that the terror of the caught wolf comes
the slow ice reaching through the scented trap;
he tears at the cold mountain, breaks stones loose from the frost.

III

Mother of Life, now is the sharpest cry heard.
All day has the sun been obscured
behind the slate-grey weather, and
for the same time have the two great
mechanics, wolf and man, been loose,
each wresting from the landscape
his own primeval design. All day
has the wolf made his way on your blue
cloaked mountain, his certainty wavering,
pausing; with bunched brows and ebony toes
on the gravel down off the ridge-line,
moving always from strategic point to point:
the need for an answer to the strange she-scent
in the air. And how clearly the hunter, who had
taken his time and patiently worked-out
of what he knew to be fact, must've seen
of wolf and season and on some nights, the borealis
over a country more cattle than elk. Saw
the terrible, white pain; the long chain
and drag-hook stretched full length,
150 feet from anchor to animal:
Plunging three miles, clattering;
stop-yanked in a frenzy, never
offering a good shot. The chain
sparking against cold granite, until
wrapping finally in a grove of sapling pine
which would not tear out. What does it matter?
as we all fall short in our leapings on the planet,
live out our lives in the boneyard and are graced,
for a while, with a voice.

It is true that the rock prevails. ■

The Food Chain

Tom, who moved in when I moved out, drove up to Virginia to pick up Wacky Kathy at the nuthouse and bring her back to the abandoned sharecropper's house for some summer R & R. The better part of Wacky's luggage consisted of two large plastic bags, each containing several pounds of mule-strength Valium, which she had procured both with and without prescription at the Pharm.

One night Wacky and Tom were in the kitchen by the Coleman lantern watching the mice make their rounds. There was something strange about those mice. They were too slow, not skittering across the floor the way they ought, but just kind of loping. One of them came cruising out from under the sink, headed straight for a table leg. He didn't even slow down. Just slammed smack into it and bounced back on his tail. Then another one appeared up on the top edge of the wall cabinets. He ran along the molding for a few feet and then began listing to port. Scratched like crazy but couldn't pull out of it and went sailing into the sink and landed on a sponge.

Wacky and Tom looked in the corner cabinet. Sure enough, there were ragged holes in both of the drug bags. Rice-grain mouse turds all about. They took to watching mice in the daytime too.

A few days later, walking out to the car, they met a little green garter snake in the middle of the path. He seemed to have stalled part way through the act of crossing a small fallen branch. Didn't even wiggle when they walked up. Every now and then he would give a micro-squirm and advance another fraction of an inch, but for the most part he just lay there, looking well fed from the slight bulge about halfway down his length. Finally he looked back at the humans looking at him. Tried to flick his tongue. Couldn't. He had to reel it back in like limp fishline.

William deBuys
Chamisal, New Mexico

Cute raccoon story

Traveling cross-country on a ten-speed bike tour, we stopped to spend a few days at St. Andrews State Park in Panama City Beach, Florida. There we soon found that we had some competition for our campsite — after sundown the skunks and and raccoons moved in. It was not uncommon to wake up in the morn' to find a dozen or so unwanted visitors helping themselves to whatever leftovers we had forgotten to hide away the night before.

On one of these occasions I awoke to find a half dozen raccoons working their way through a bag of Oreo cookies I had splurged on right before bedtime. Usually I enjoyed these late night raids. But tonight I was mad — that was my breakfast they were eating! — and I went after them with whatever I could find to throw. The 'coons took off fast. I secured the few remaining undamaged Oreos and went back to bed.

I was sleeping under the stars that night, stretched out beneath a friendly old Florida pine. After five minutes back in the sack, hanging right on the edge of sleep. I looked up — and saw a monstrously large limb about twenty feet above my head that was in the process of breaking off.

I did an incredible high speed roll to my left, sleeping bag and all. I got maybe five feet out of the way before the branch crashed to the ground.

It was six feet long and a good four inches thick — and had fallen approximately twenty feet to touch down with deadly accuracy on the towel I had been using for a pillow.

Accident? Coincidence? Bad luck? Not a chance. I heard rustling noises from the former position of the fallen limb — two raccoons. They were rapidly leaving the scene of their attempted homicide, but one of them paused long enough to turn around and look back. He stared straight at me with a gleam in his bright yellow eyes.

I spent the rest of the night out in the open, and I no longer mess with raccoons.

Michael McClelland
Anderson, South Carolina

Broken Circuits, Smoke and Fire

Frustrated in your present job? Happy Villa Nursing Home needs a Food Manager.

BY JUDY MELVOIN

MAY 3. (A letter from Annie.)

Dear Jim and Kitchen,
Im going to drink tea untill my mom buys The postum. Is it okay with you? I hope so. I don't want to get in trouble with you.you are going To get so many letters from me. I think you like my hand writing.

Signed Annie
and Sophie

may god be with you all the time.
P.S. Im going to break my mom's law. I like the way you walk. May I please have a picyure of you?

* * *

Annie is one of the 105 patients at Happy Villa that need alot of attention. She has a crush on Jim, the teenage dishwasher. He doesn't know what to do with her except perhaps to try and avoid her.

Ruthie is another patient. She's one of the old ones, wears shapeless dusters and worn leather moccasins. She climbs into the kitchen's dumpster to crouch, eating garbage, unless and until I pull her out.

I do pull her out, and she hates it; standing there, saliva running down her three-haired chin, chest heaving, wordlessly glaring at me. She would like to avoid me.

But what else can you do?

MAY 4. Happy Villa is a residential nursing home for the cerebral palsied, the mentally retarded, and various other crippled bodies or minds that no one else is particularly willing to have around.

My job as Food Service Manager is to get 2215 food servings a week from the kitchen to these patients. They're young, for the most part, in their twenties or thirties, though there are a few geriatrics and Kevin, who is eight, mentally disturbed, and trying to starve himself to death. He lies emaciated and pale on an elongated wheelchair, croaking out Fuck you! Fuck you! to anyone approaching.

The residents pay upward of $40 a day for the facilities and service; there is no resident doctor, only one or two RN's per shift, and everyone must pay an extra $5 a week for the laundry service.

Mealtimes are always a crisis, generally late, and usually cold.

MAY 5. Walk into work this morning and there is Dave, the cook who is leaving for Alaska in two weeks, ladling pancake batter onto the grill with a broken icecream scoop. The batter dribbles over the edge of the grill onto the floor: the grill itself so old that it takes an hour to heat up, three to cool down.

The author, the dates (May 3 - July 5, 1976) and the events, in Washington State, are all true. The names of the home, the patients, and the administrators have been changed until Ms. Melvoin finds out where she stands legally with this kind of reporting. Like several other of our best pieces (Ursula Le Guin's "Space Crone" and Theodora Kroeber's "Cross-Generation Marriage") this article was rejected by Ms. *magazine, to whom we are increasingly grateful.* —SB

The first thing you should know, says Dave, is that the emergency breakfast is cold cereal. If you screw up lunch, there's always peanut butter sandwiches — they just love those. And if you burn dessert, or don't get around to making it, well, we always keep the icecream freezer full of Dixie Cups. They just love those too.

He then hopefully plunges the broken icecream scoop into the depths of the pancake batter — I didn't have any applesauce for the 'fruit pancakes,' so I dumped in a No. 10 of fruit cocktail; but it all seems to sink to the bottom, doesn't it?

Nadia, the other cook, has been managing the kitchen until they found a replacement for the previous manager. That person is me, and Nadia is angry that I am here.

I see her later preparing coleslaw and notice that the shredder she is using is also adding fine bits of shaved aluminum to the carrots: the shredder is shredding itself. I stop her from using it, and mentally add one more piece of equipment that the kitchen needs and doesn't have.

It is hard to believe what I am seeing and hearing, but then again, I don't quite comprehend the meat freezer, which grows ice and mold on top of itself, either.

What is the deal around here?

MAY 6. Henry the Administrator is a big man with an acne-scarred face, bent nose, and hair slicked back with haircream. He tells me that the State is not fond of him and would like to close Happy Villa down. It is therefore of great importance to have the kitchen running at least up to minimum state regulations. Henry is apparently sometimes capable of telling the truth: He, along with Lyle the assistant administrator and the head nurse, is also the owner of Happy Villa. Very few people know this, and the owners prefer to keep it that way. And since I am one of the (unchosen) few that does know, I am firmly advised to keep my mouth shut. I don't like the feeling I get, but mentally comply. I'm new on the job.

MAY 7. There are recipes around somewhere, but no one knows exactly where.

There is no system of measured ingredients. After prolonged search, I find one dented aluminum measuring cup underneath the sink.

The grill will not bring water to a boil. There is nothing that will bring water to a boil.

The patients drink coffee from plastic juice glasses because there are not enough cups to span a meal.

Nor are there enough spoons.

There are no fry pans, double boilers, but one dented pot, no sauce pans, and the industrial bench can-opener is so rusticated that you may as well throw a can into a cement mixer to open it — you get the same mashed and dented results.

The sink plugs up regularly; the drains explode sporadically, as do the patients.

MAY 9. (A letter from Annie.)

Dear Kitchen,
My mom does not want Me to drink coffee. Jim Was right in the First place about it. no Thank you. I

Jay Kinney

will use my postum. Will you give me a pot of warm water?

Thank you

my mom got after me over the phone.

* * *

Annie may get in trouble over the phone if she drinks coffee. Morton, on the other hand, bashes his head against the wall until both he and it are bloody (or the staff restrain him) if he doesn't receive three coffees, with six packets of cream, and six of sugar.

And both Morton and the wall are getting bloodier each day, mainly because of Lester. Lester is the daytime dishwasher. He is also mentally retarded and an ex-convict.

He's not violent. He's just so dumb that he keeps getting caught. Henry The Administrator insists that I keep Lester on, in the hopes of receiving compensation from the State for employing a disabled person. But Lester's so mentally disabled that he is disabling me.

Meal trays are sent from the kitchen into the dining room where they are distributed to the residents (if they're lucky; many times the extra food or the trays themselves are waylaid to the staff lounge.) It's part of the dishwasher's job description to set these trays according to the mealtimes (there are two of them per meal), type of diet (there are seven), and the requested beverages, which are all marked on the tray cards.

He is to pour, and then place, the drinks on the trays before they are served.

Lester strains mightily at the task. But there are 105 trays to set, 105 drinks to pour, and it flusters him. Nobody in particular is getting what they want to drink, everybody in general is complaining, most of all Morton, who is currently as red and eruptive as a boil.

(So, too, are my arms: I develop a rash when I'm upset.)

I can't fire Lester, due to Henry The Administrator's economic ploys.

There is no other position for him where he wouldn't be more damaging.

And I can't cover him, because I'm already covering two positions.

And so we struggle on; Lester flustered, anxious to please, yet tipping entire trays over, sending complete carts out an hour early, or late, placing sugared drinks on diabetic trays, pouring coffee for Annie, tea for Morton; sweating under the strain of it all and still desperately calling out after a month on the job, Now I pour the milks, right, Sis?

Meanwhile Nadia is still quite angry, and has taken to telling persons that ask to see me, That one is sitting on her butt in the office, doing nothing. Actually, I'm looking for (1) the rest of the damned recipes, (2) another cook, and (3) trying to get the ordering straight so that the food at least is on hand to be served, if once again late and cold.

I work 75 hours a week now, filling in for Dave. I'm tired.

I am particularly tired of the filing system, which is a misnomer because none exists: it is a matter of piles and stacks of papers, nooks and crannies crammed with more paper and, unbelievably, empty file drawers.

Nadia's system has been one of routinized emergency. She planned, ordered, prepared and then served food on a crisis basis, and that is what I have inherited.

Five patients stand at the kitchen door's window most of the days. They begin to salivate an hour before every meal and watch me constantly – The Saliva Five.

Ruthie is in the dumpster again, and icicles are now beginning to creep ominously down the outsides of the freezer.

MAY 10. No experienced cooks are willing to work here for the below-minimum wages that there are to offer. Henry The Administrator cheerfully advises me to be of good faith, someone will turn up (WHO? WHEN?) and adamantly insists that the signs of a qualified applicant may be found in their Length of Hair and Goal in Life. I think the determining signs are those on the paycheck; how do you get adequate staff for inadequate wages?

. . . and in careens Chris of the Motorized Wheelchair. He cannot speak except by straining his neck violently and sharply to the left. In through the swinging kitchen doors he zooms, wheeling full tilt, his legs, his whole body straining at the leather strapping that keeps him in the chair, and he rasps, nearly strangling himself with his tongue – The food, the fucking food! Are you trying to kill me?

MAY 11. Henry The Administrator sells the beef that the kitchen buys. He has a herd, and from this comes the prewrapped meat at a lot price of $1.36 a pound.

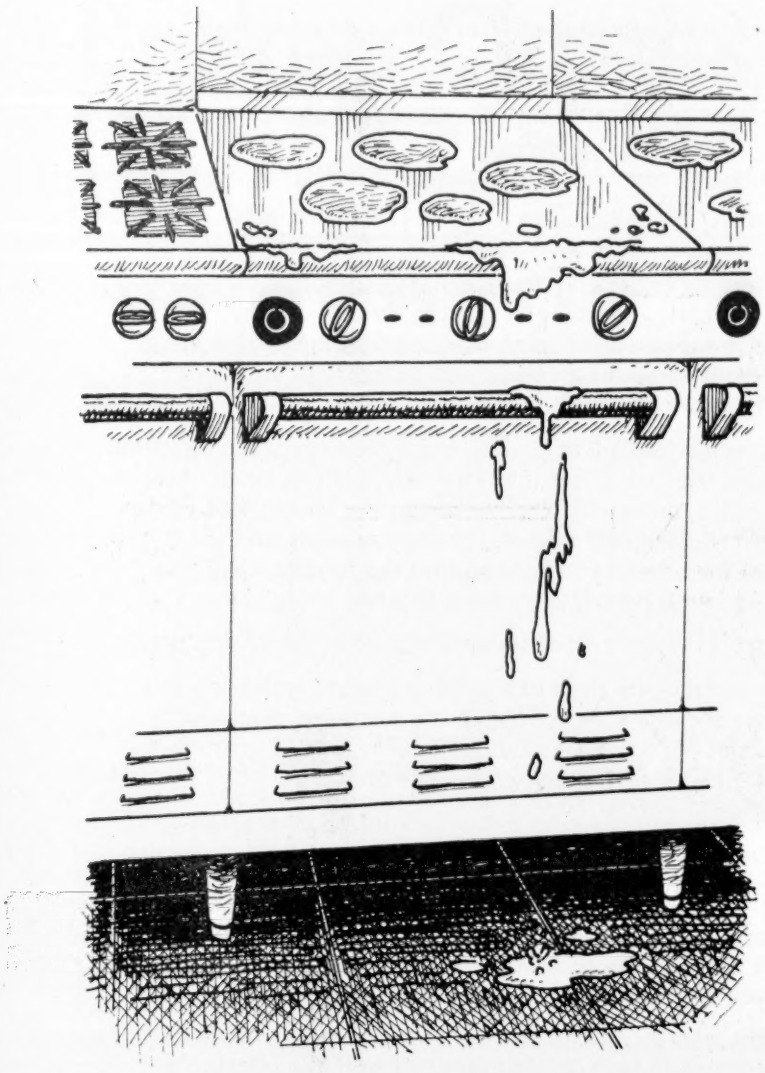
The kitchen could buy meat wholesale – ground beef at $ .76 a pound, which we use at least once a week; liver, which the patients hate but must have weekly for its iron and protein, at $ .49 a pound; roasts and stew meats for varying amounts less.

Henry takes home the steaks and good roasts from the kitchen's freezer.

Soup bones, which the kitchen cannot even use for stock because it is perforce understaffed, are useless, heavy, and cost the patients $1.36 a pound.

Nadia gleefully says That's nothing. Wait, she says, until Henry goes on a camping trip. He backs his camper up to the kitchen door the evening before and wipes us clean.

. . . sandwiches are made like this: you place a small scoop of filling on a dry, unbuttered piece of bread. Then you



place another slice on top. The final step is to pound the result once lightly with the fist, to make the filling spread. The filling does not spread, but it does effectively keep the two pieces of bread stuck together.

MAY 12. The bread is incredibly stale.

$20 worth of canned tuna, olives and fruit juices and the like have been missing from the storeroom each morning.

The Saliva Five now smile and wave to me, Nadia has taken to rumbling about the kitchen muttering to herself, and dinner was late again.

MAY 13. There is a ceremony, an exchange of vows, today. Ellie and Fritz have affection for each other. The guests are seated by a beaming and gracious mother. The photographer is all set up. The minister arrives.

Ellie looks about vacantly, except when she breaks into wide grins at odd moments. Fritz is expressionless, frozen.

The minister exhorts the couple to be kind to one another, to cherish the friendship. He is also particularly concerned that Ellie understand that she must not bash Fritz over the head when she can't get her way or is miffed — a pronounced tendency of Ellie's that she frequently displays because she, like Fritz, has the mentality of a six year old.

Fritz' body is so structured that sex is impossible.

The minister and the mother both appear quite pleased with the ceremony.

MAY 14. Aides are hired here to do many things, among them being to feed the patients. The patients are not receiving all of the food available to them, are hungry, and complaining.

Not always, but most often, this is in direct correlation to the extra food that the aides "forget" to serve, perhaps because they "didn't see" it.

I notice, though, that they are swift to take meat and sweets from the trays — or even the 'seconds' portion itself — into the staff lounge, where, I have found, they hide it under the sink for later, more relaxed dining.

The aides further demand of the kitchen: boxes of crackers, gallons of milk, and a half jar of peanut butter daily to supplement this haphazard diet. The kitchen cannot afford this when the budget is no larger than $1.50 a day per patient — particularly when these patients are young and consume huge amounts of calories through their involuntary muscle movement (let alone the effort it takes some of them to move voluntarily).

So I refuse to supply the aides with their free meals at the patients' expense. And they no longer think I'm nice any more — another cold war front.

Somehow the system is backwards. The patients are more fed off of than fed.

Nadia is now calling enemies on the phone to tell them they are 'damned bastards.'

The evening cleaning crew has been using floor stripper instead of soap to cleanse the floors at night. Henry The Administrator sweeps down today to correct this by initialing, with great gusto and flourish, the proper bottle to use.

Many patients come into the kitchen for more coffee; it is the most symbolic request that they have. It is their only choice. And though it is clearly against regulations, I let them in, just because of that.

The dishwasher does not work. The rash is up to my neck.

MAY 17. (A letter from Annie.)

Dear Kitchen,
I don't want coffee on my tray. I will use a Jar of of postum.My mom dose not Want me to drink coffee. mom used to drink coffee a long time ago, but she quit. Now she is trying her Best to keep me from drinking it. So Just put a pot of warm water on my tray.

Signed Annie

Lyle The Ass(istant administrator) likes my ass and legs. He also appreciatively eyes Henry's position. But Henry is fond of it himself and intends to keep it. So both tell me separately to come to them, not the other, for any questions I have. Henry adds that he is so busy during the day that meeting at night would be best, if it is agreeable to me. It isn't.

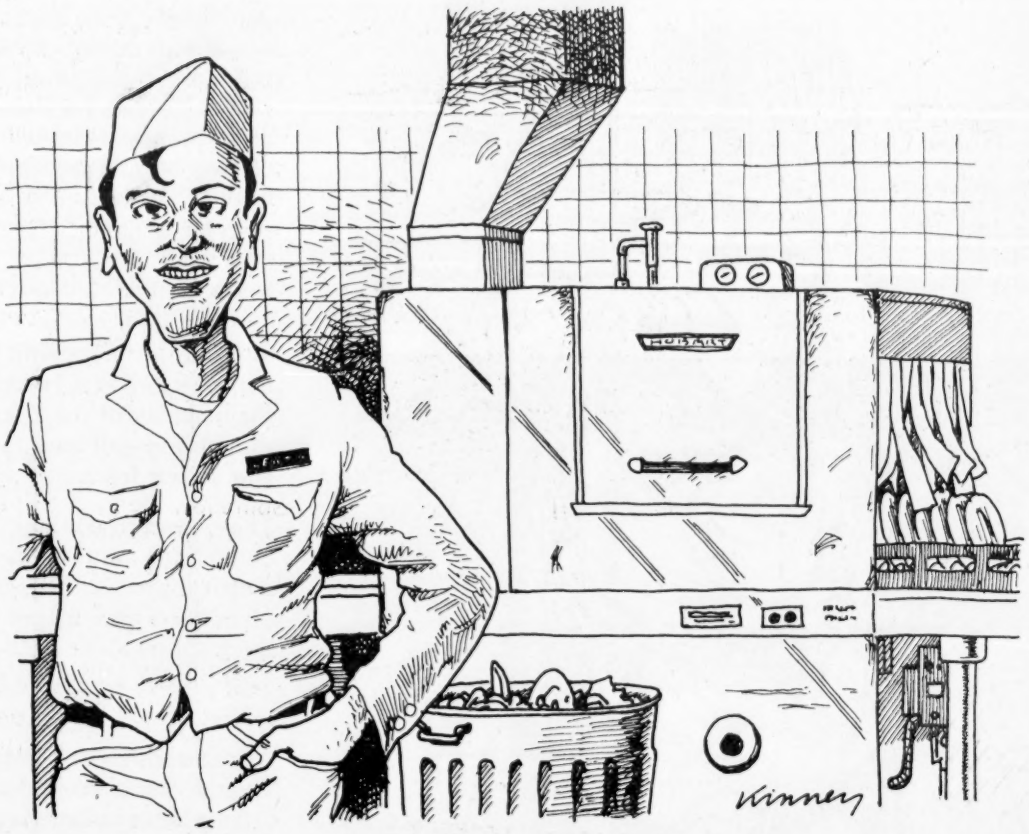
Lyle The Ass. is also orphaned, half Indian, and has had it rough. I know this because I call him down to show him the meat freezer that grows ice and mold on top of itself and keeps the meat permanently thawed. I pull a haddock fillet out of the freezer to emphasize my point; it wiggles at the end of my fist.

Lyle frowns, assumes a look of concern, then says that he is orphaned, half Indian, and knows how rough it all is! But what can you do?

I do not think it's life making the freezer keep ten pound bologna sticks ready to pull out and slice. I think I need a new freezer.

The dishwashing machine is apparently another problem in life. It breaks down regularly and does not bring the water to 180 degrees, which is the regulated minimum heat the water must reach. Lyle comes down to the kitchen and observes the gauge that measures the water temperature. He then pulls out a stopwatch and starts the machine over and over again, timing it. He does this repeatedly until the needle on the gauge reaches once, in its faltering death, the magic mark. But an instant is enough; native patience is rewarded, the

vigil is over; he straightens up and says, Well, I think we've got her fixed now! and leaves. He leaves me with the growing puzzlement of how to bring the kitchen together without equipment, funds or staff. Perhaps I am missing something here? Do they <u>really</u> expect the kitchen to be more than it is?



May 18. Jolly Good Services hires me out to manage kitchens. It also has a contract with Glick's Gudi Gluten Products to supply this and other institutions in the area with day-old bread at a very reduced price. G.G.G.P. relieves itself of extra produce for a small gain, and the homes are given an economical means of buying bread: everyone stands to profit.

But George The Breadman found an even more lucrative business venture — Nadia.

He has had her accepting on Mondays bread for the following five days instead of the contractual one or two. George has a less strenuous delivery route this way, and also virtually assures himself of being able to rid himself of the week-end's greater-than usual excess loaves from the supermarkets shelves.

Nadia not only accepts already-two-day-old bread for the following five days, but, true to her general rule of thumb, orders too many loaves, which ensures not running short. It also ensures the patients eating incredibly stale bread at any given point.

I talk to George The Breadman about this, and he tells me I am mistaken and what am I, anyway, a nuisance?

The head of G.G.G.P. doesn't call me a nuisance. He calls me Honey and Sweetie Pie and tells me as a favor he'll see that the bread is delivered every other day and still at the same old reduced price!

I tell <u>him</u> that (1) my name is not Honey, (2) and not Sweetie Pie, either, (3) that it is no favor, but merely honoring the contract, and (4) I am <u>too</u> going to be angry until something is done.

MAY 19. Henry The Administrator is also a big man, inclined to paunchiness and constantly on a diet. He stays paunchy because dieting makes him hungry. When he is hungry, he comes to the kitchen to pick up around three pounds of fresh fruit to nibble on. He is often <u>very</u> hungry.

Today he comes in whistling nervously, as is his manner, and I tell him that the fruit is expensive, carefully ordered, and that he is depriving the patients of what they have paid for, need, and aren't getting because he's already eaten it.

Henry stops whistling, carefully replaces the fruit, and leaves, but the tension in the air doesn't.

Morton continues to battle with the wall.

MAY 20. George The Breadman comes today with his supervisor riding shotgun. The supervisor is pleasant; George, grim. He no longer leaves the free maple bars and sugar donoughts for the unresisting maws of the kitchen staff.

But the bread is considerably fresher. I am now hot on the trail of making Fresh Tossed Green Salad with French Dressing and Herbed Croutons — something more than the usual two tablespoons-full of wilted lettuce jammed in a white paper pill cup.

Am also in the process of changing Nadia's concept of "orange slices" (you slice them paper thin, you see, and then give just one slice on each serving. That way you don't have to buy so many oranges . . .) and her general rule of thumb in the amount of food prepared, which translates "alot." Nadia fixes "alot" of everything, which is why the budget is $3,000 in the red, why I see 90 eggs go down the drain because no one wants any more scrambled eggs, why the food is even more substandard than it should be and red meat considered a luxury.

MAY 23. (A letter from Annie.)

Dear Jim,
I am glad you put no coffee on my card. Is it okay if I have Sanka? Yes or no. When you come to work, I drink Sanka. it has no caffeinn in it. You are real nice. Thats why I like you so much. I know you and I made a deal

Signed Annie

when you not here I just about died.

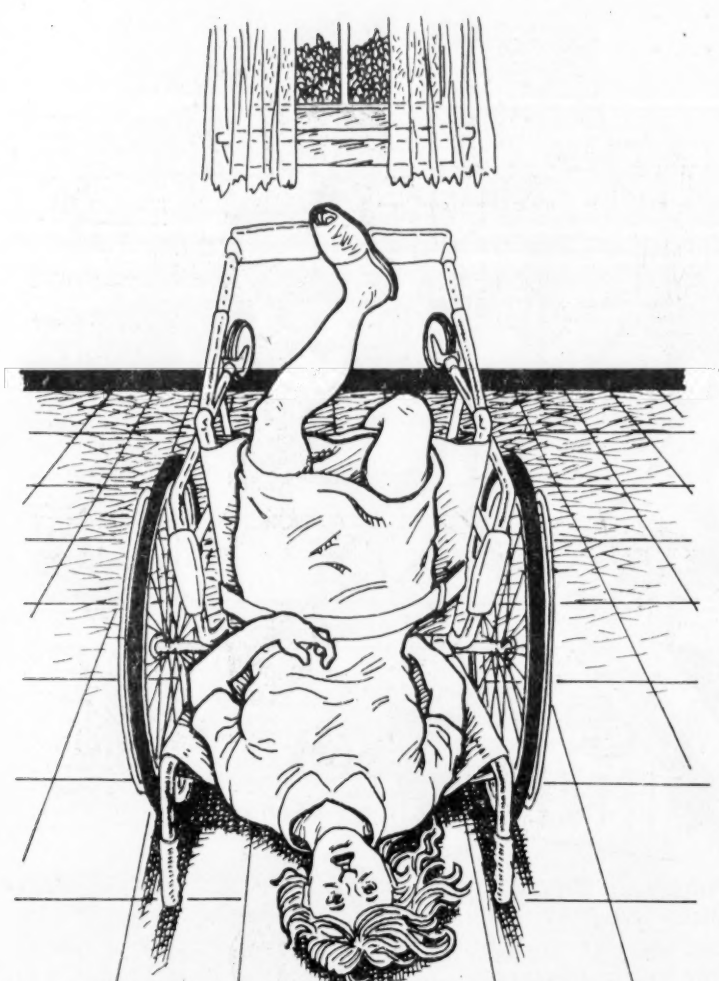
P.S. Also I have a crush on you. I don't want to lose you at all.

To Jim from Annie
Your friend
I don't want you to get on me I'm trying very hard to lose weight.

* * *

The patients are anxious to talk to me, if for no other reason than no one before has bothered to ask them how they feel about the food. I have little time to see them though, but Scott is insistent, and I take the time anyway this afternoon to talk with him.

Scott walks the hallways constantly, dressed always in a bright pink shirt and matching bow tie. He wears extremely thick glasses and turns his head sideways, then up and down, his crossed eyes and bent fingers rolling at sea, and he asks, What is your favorite color? and you learn quickly to answer, Pink, pink is my favorite color, what's yours? And he answers, Pink, pink is my favorite color, and then looks at you enormously pleased and relieved that the test has been passed. and he's safe, and he won't have to get upset and start nodding his head in growing insistent momentum and fury



until you think the frenzied head-bobbing is the way he got crossed eyes in the first place.

We go out into the hallway to sit on an abandoned hospital bed to talk about what is bothering him. And Scott, like Morton and Annie, is concerned about his coffee order. He wants TWO coffees, with SIX creams and FOUR sugars. I make out another tray card for him, though the existing one is clear enough on this (Lester!). Scott is pleased by this action and interest, so much so that he relaxes, leans against the wall, and begins to relate what to serve in hot weather (just one coffee), or if it's really hot, (no coffee, but iced tea, one lemon, no sugar) and then again, how to best tell when his cocoa-mood has descended (in very cold weather; he shivers to make the point).

Finally he summarizes those odd but crucial moments when nothing but grapefruit juice will do.

It is sad and poignant and funny. I would like to do all of these things for Scott; he'll be lucky to get coffee at all until I can get rid of Lester. But we both feel warmed by the interchange, though I know that not a damned thing has been changed. For all of his ways, Scott is a brilliant mind and fine pianist.

Return to the kitchen to find the osteriser has blown up; it is remarkable how penetrating the odor of burnt rubber is. Dinner is late, and cold, again.

MAY 25. I hired a young man two days ago and began training him as cook. He was the only person I could get, but it was a mistake. Today he quit, in white panic. He wants to be an auto mechanic instead.

And I find an unserved patient's tray underneath the sink in the staff lounge. On top is posted a scrawled note in pencil on paper toweling: HANDS OFF! MINE! ON THREAT OF DEATH!

And finally, I see that the obese driver who takes patients to workshops during the day is also taking extra lunches from the kitchen along too. In all, she (1) gets those sack lunches that she orders for non-existent passengers, (2) she doesn't mark those persons who are staying at the Villa for the day 'absent,' so she gets their lunches, too; (3) they don't get in-lunches, because they're marked out, and (4) I end up making emergency lunches for them, and the food-count, as usual, is thrown off because she's managed to ace-up ten extra lunches for herself.

MAY 26. It has come to my ears that the previous manager, before Nadia, was released in part because she kept herself and the majority of the kitchen staff stoned. I fully understand, though I myself have taken to scotch, neat, in the evenings and do not feel inclined to share it.

The system of cooking here has been to cook to the lowest common denominator. That is, a few low-sodium diets has meant that no salt has been added to any of the food. Three bland diets have meant that pepper, onions, garlic, and any spicy substances have been deleted from all of the food. There is one allergy to pork: NO pork is served, ever, to the remaining 104 patients.

It is also apparently easier to pour juices the day beforehand. Though this ensures the loss of all vitamin C, highly complicated past negotiations amongst the staff as to whose job it is to pour these makes it near impossible to change the system. This is because the person pouring three juice servings somehow is able to exchange the washing of one kitchen window for it. Once again, discussion ensues on this point, and once again, they tell me I don't KNOW what it's like washing all of those big windows.

I do know what it is like, though, to be in the hectic midst of cross-referencing every meal for diabetic, dietetic, bland, low sodium, total-puree, chopped solids, bulk and no-bulk, allergies to fish, eggs, milk, cheese, chocolate, all white sugars and starches, butter, pork and pineapple (though Cal's allergy to pineapple doesn't count -- there is never any to be served anyway) and then have Henry The Administrator come down to say, again, that I have not yet found the precise amount of dressing to put on his salads, and to broach the subject of buying 50-pound lots of dried fruit that he is getting for a "good deal" from a friend east of the mountains.

I refuse to buy it, and Henry is not happy with me.

I am not happy with him either.

MAY 28. Lester is now disposing of the nastier parts of his job, such as dishes with stuck-on food, by putting them into the garbage. Dull disbelief leads me to Henry's door, but he is adamant: I cannot fire Lester. So I tell Lester NOT to throw dishes in the garbage anymore. He follows this train of thought, and by long deductive process starts throwing away silverware for the same reason, by the same method, two days later.

Three patients will not eat their eggs today. They were scrambled and had "funny white stuff" in them. They think egg whites "funny white stuff" because they literally have not seen it before. The previous method of scrambling eggs was to dump seven flats, or 210 eggs, into a steam pan, mix them up with a dab of milk, and steam the whole affair for 40 minutes. The result was something like ossified jello, uniformly mustard in color, but a food that handily sliced into neat cubes, which made serving and preparation ever so much easier.

Gladys finally is staying out of the kitchen now. She came in the first morning I was here, elbowed me aside to get a No. 10 can of plums from the stock, and then proceeded to open it up to take out two plums from the top and leave the opened

can on the counter as she vaguely left the kitchen munching on the two. I turn to Dave, the cook who left for Alaska, and ask, Who is that? And he says, Oh, that's Gladys, the Laundry-lady. Then he relates that no outside staff are allowed in the kitchen, but she comes in anyway. I am amazed at the total transaction, and even more so when she later reappears, and I start to say something but stop because she is babbling at me about she and Dave being "sweethearts," and "doing things together when we're alone," and then she cackles and makes lewd finger signs at Dave who is fat and 20 and wears glasses on his pimply face, while Gladys is 50, clearly distressing Dave, and he says tiredly, Get out, Gladys, just get out. She turns and looks at him and says, Fuck you, and then she does leave.

Apparently, the kitchen is not the only place where Henry The Administrator's hiring policy has struck.

She has since then come in repeatedly, and I finally say in exasperation, GLADYS! GET OUT! AND STAY OUT! FOREVER! And she has.

Another staff watching this blandly comments afterwards that Gladys can get violent and no one has dared do this, though many have wished to.

MAY 30. A young man, John, is admitted today. He is here because he is burnt out on drugs, and until his insides heal and he can figure out how to walk again, he has to stay, though he hates it. Later I smoke a cigarette outside on my break, and he is out there too, and we eye one another. I feel as though we both feel we're prisoners of a sort.

George The Breadman gaily continues to greet me with, "And how is Little Miss Troublemaker doing today? Working hard, I hope?" The "little miss" galls me. I do not mind the troublemaker, though it is an image I have never sought. Perhaps being straight is not an appreciated quality. It is, at the least, though, wearing. Ruthie is still in the garbage can at every chance, and Lester, I've found, has been filing annoying tray-cards in an overturned flower pot in the kitchen. I no longer even begin to wonder how a flower pot got in the kitchen, but I am wondering what it means when the absurd makes sense?

JUNE 1. The dishwasher just hums: it will do nothing else. The kitchen staff stand about it trying to assume expressions of knowledgeable perplexity. I call Fred The Handyman — somehow he has never been deemed 'maintenanceman.' He eventually strolls in and looks totally surprised that I think he should know how to fix the machine. I am totally surprised that I finally figure out that there is a button pushed in that is usually out, and that is the problem. We are all surprised when Lester's curiosity leads him to open the machine's door while it is operating to see if it really is working, and we're doused with very hot water.

JUNE 2. Fred is a religious man, too: today he tacks a Prayer For Patience above my desk.

I call the firm that handles the dishwashing machine to get someone to explain it to me; I see no other way to handle its breaking down so frequently. The representative comes, teaches me, then comments that part of the problem is that it's filthy and who's been running it, anyway. Lester, I answer, but you wouldn't understand. I'm not even sure that I do.

The Produceman has been putting rotten fruit at the bottom of the crates. I take him to task, and that stops, though my growing sense of bureaucratic paranoia is only increasing. Is everything a rip?

JUNE 3. Sonia is in a wheelchair, as is Barb. Sonia wheels up behind Barb, smiling, and Barb just sits there quietly, as usual. She speaks very little, and when she does, you realize she

could as well be a man. Sonia wheels up behind Barb, smiling, and grasps the back of her wheelchair and pulls backward, smiling, and I pull forward because a tip will crack Barb's head and Sonia smiles and pulls and I realize she is very, very strong and she pulls backward and the wheelchair goes over slowly and gracefully and Barb doesn't utter a sound as I strain with the chair and it is very quiet except for Sonia's smile and my breathing and the sound of Barb's head as it hits the linoleum and Barb never makes a sound, or changes expression.

JUNE 4. The budget: $2.50 a day per patient, to include all kitchen salaries, equipment, supplies, dishes, and, perhaps last and least, the patient's food — $1.50 a day for that is the maximum possible. May's accounts: $1.30 a day per patient for three meals, with an increase of the usual, and minimum protein count of 55 grams a day up to 80. I feel very good about it: the work, battles, and homework have been worth it.

I order coffee cups (because the patients are still drinking coffee from plastic juice tumblers), measuring cups, fry pans, a double boiler, and a new industrial bench can opener. Also spoons — Lester continues to be quick when he needs to be.

Yet unserved food that the patients would like to have had continues to be returned to the kitchen. Today I begin to go out after the trays are set up to help distribute that food and feed the patients.

The aides no longer speak to me.

JUNE 5. Life goes on at Happy Villa. Lyle The Ass. meets the little blond nurse's aide late Saturday nights at a rundown Chinese restaurant two towns away. She receives a R.N.'s salary for her services.

Life goes on at Happy Villa. Nadia now steams down the halls to talk at Henry, the dishwashing crew wilts under her

verbal assaults, and Marny, the new dishwasher who I'm training to take Lester's place once I can get rid of him, watches it all with beady eyes, trying to decide which camp to follow when she's not trying to decide what to eat next.

Life goes on at Happy Villa. Fred The Handyman uses a great deal of his clocked-in time to work on Henry The Administrator's rental house. He is, at the moment, painting the exterior. Henry is no dummy; he knows a competitive market from a captive one.

Life goes on at Happy Villa. Lyle The Ass. happens to be head of the small and select group that accepts outside donations to the patients of Happy Villa. $5,000 came in three months ago for their clothing and special activities: nothing has been spent on them.

JUNE 6. It's too much. Violet, an epileptic, had an operation to place a shunt on the inside of her left temple to reduce water-build-up from another condition. Today, an aide leaves her unattended in the bathroom, Violet has a seizure, falls off the toilet onto the left side of her head, and dies instantly because the shunt dislodges and pierces her brain. Violet was young, in her twenties. The aide was fired, but the reason for the inattention or time press has not been changed in the least, and I am nauseated.

JUNE 8. There is a meeting today, falling at the time George The Breadman is supposed to arrive. I leave a detailed order, written out, for him. I return from the meeting to find the shelves sagging under an additional 45 loaves of bread beyond the ones I ordered. I make my way into the heart of the kitchen where Marny stands quietly — she is either sleeping or thinking, I cannot tell which. I ask what has happened and she says George told her that I was mistaken, that I needed more loaves than I had ordered, and don't worry, I'll understand.

I do understand.

Lester is now throwing away, openly, anything the young mulatto dishwasher has touched with his lips. This young man also explains to me that Lester shakes his mop with great fury at him when no one is around to see, and that is the reason he won't work on the same shift with him.

I can't do half of what I'd like to do about it, and after a full month here, find I still must only hope to keep the kitchen functioning a shade this side of chaos. Crisis is my constant companion.

JUNE 9. Cory blows in the dining room, ripping her blouse up and open, exposing her breasts, then squeezing and pumping them, shrieking all the while, Take them! Take them! Squirt! Squirt!

The Villa is under the impression that the patients check in their genitalia with their names at the reception desk. They don't: they're young, aroused and arousable. Why can't consenting adults have sex in the privacy of their bedrooms? Is this an inmate system? Is being deformed punishable by up to a lifetime of sexual frustration and deprivation? Is sex unsanitary?

I'm tired of avoiding male (and female, for that matter) patients who want to rub themselves against me for whatever satisfaction/release they can find.

JUNE 10. Last night two bewildered teenage staff called me at home to say they were literally ankle deep in food-sodden water, and what should they do now? The drains had exploded.

I call Fred The Handyman, drive in, and find him wading through it all with his hoses and pumps humming Oh, Holy Father, hmmm, oh, Holy Father, and then he says, You served rice for dinner tonight, didn't you? and I say How did you know? because he is right, and he says, Oh, the drains always explode when rice is served and then he returns to humming and pumping, Oh, Holy Father, hmmmm. . . .

One of those two staff was new and in training, and she called today to say it is all just too upsetting and she's quitting. Once again, and again and again, crisis hits and there is no one to take her place tonight and we work harder than ever and dinner is late, and cold, again.

JUNE 15. The State Auditors are here, and there is constant tension in the air. Henry The Administrator leaves for two weeks, and Lyle walks about strained and frowning. Billie The Bookkeeper is suffering most though; she comes into the kitchen with migraine headaches daily, and passes on the instructions that the administrative lunches she steppinfetches each day are now to include a serving of what the patient's fare is. It should always have been this way: it is a regulation.

Billie has often told me that she is not here to 'think'; her only job is to do what Henry instructs her to do. It is a litany with her now, and she turns to me furiously today and screeches beneath her breath, And neither are you, Judy! Neither are you! You're not supposed to think!

The van that is used to transport patients disappears while the auditors are here. It is registered under Happy Villa as a white Ford van. And it is.

It is also customed designed, the ceiling of it being high enough, in fact, to accomodate Henry The Administrator's six feet, two inches. This is good because Henry and Lyle are avid hunters and fishermen, and take it out weekends and holidays for just that purpose. The patients, who through their fees have paid for it, kept it insured, fed with gas, maintained (both of these at a gas station that is owned by another 'friend' of Henry's) are not invited along. When they do get to ride in it, the tracks for their wheelchairs are dirt bike tracks. This is handy because Henry and Lyle are also owners and avid users of dirt bikes.

It is even fitted with custom-made mahogany drawers that open inward as well as outward. Fred The Handyman spent hours of, again, clocked-in time working on these, which are good for nasty weather in the wilds.

JUNE 17. (A letter from Annie.)

> *Dear Kitchen,*
> *Why did the man put coffee on my tray? I don't want coffee. Paul asked me.if I was mad at you and I said no! I Will never get mad at you.*
>
> *To Jim, signed Your friend Annie*

Walter has cravings for grape juice and strawberry icecream and is young and dying of a brain tumor and he knows it, knows that he is dying, and now his bright college career is over because the tumor has reduced him to a limping, speechless, jiggle-eyed, drooling, weak-limbed dying prisoner. He told me he was dying one of the first days I was here, by writing with his finger on the wall. Now he writes in the dust of my carhood, where he has taken to waiting for me after work so we can 'chat.'

One night I take him to a fish 'n chips place, and he buys me an icecream cone and refuses to eat his order there because he is slow and painful to watch eating, and he is embarrassed, so I drive him back to the Villa and he spills his orange drink all over me, but it doesn't matter because he is young and dying and knows it and the spilled drink really doesn't matter at all.

JUNE 18. Campbell's Soup arrives in the form of two representatives today while I take stock inventory, carrying a small silver-domed soup tureen delicately in front of themselves. In they come to my office, silver-domed tureen and all. My office is also the storage room, and they nestle that beautiful little dish next to the sterilized garbage cans that hold powdered

milk and soy meat-substitutes and all the other basic, mundane foodstuffs of this small world.

Then the female representative pops out two perfectly rounded meatballs for me to sample as Lester drops a tray of glasses, fingers her pigskin briefcase as Ruthie clambers into the dumpster once again; and the male rep shows me glossy pages of pre-prepared foods that he has no idea of the cost of or the protein count of as Marny slinks out the door leaving the floor unmopped and a cookie in her jaws. They both smile weakly as George The Breadman pops in with his usual salutation and I know one of us has lost sight of reality and I'm not sure who it is.

JUNE 21. There is a new cook, finally: Red. He is 28 and applied with his mother along; she sat with him during the entire interview and drives him everywhere. I don't care, he can cook, I'm desperate.

JUNE 22. Red can cook, but he also likes to hold his hands over the grill or any hot cooking pot top and see how long he can bear the pain, grinning all the while. Now I do care, and I'm frightened. Henry says I can't let him go because the Villa has had too many state compensation claims against it, so I just am going to schedule Red one shift per week and hope that he quits.

JUNE 25. Many of the patients wear football helmets to protect themselves from falls. I see them out in the sunshine alot now. Georgia is one of them. She is confined to a wheelchair and putters about with her picture books and stuffed animals, totally and happily unaware that she is 25, chubby, has an enormously swollen, scabbed and near-toothless face, and that her eyes are nearly lost under the heavy puffiness of her eyelids.

She loves to be hugged, and often is.

Clara, who looks much like Georgia, wears a helmet too, but can walk, is out on her rounds, too – in hot pursuit of Frank, on whom she has firmly decided to bestow her considerable affections. But Frank would rather not, and tends to hide behind the kitchen, but it doesn't help, and Clara usually catches him there. She comes to a roaring halt, hands on hips, eyes him firmly, then walks up, helmet glittering in the sun, swollen lips garishly covered in thick scarlet lipstick, and says, Frank! We've got to talk!

JUNE 26. While shelling eggs today, I find myself watching three patients have sex on the yellow couch out in the back parking lot, placed there for the patients to sun themselves on. One man is limited to a handjob, but the remaining male and female, after draping themselves inadequately with an overcoat, manage to get it off. They are deformed, slightly retarded. Slow, lazy, happy smiles spread over their faces after awhile. It is a warm, sunny afternoon, I blankly realize I have blankly watched this, fighting down a vague feeling that for some reason (why?) it should be stopped, and put the deviled eggs in the refrigerator.

JUNE 27. Charlie looks as though he was designed, cruelly, for a monster on a Hollywood set. His long, peaked eyebrows surge out over his permanently crazed eyes, he walks with a lurch, bouncing off walls; his teeth are steel capped because he grinds them constantly. He is harmless, always hungry, and missing one day. I ask, What's happened to Charlie? No one will say. Now it leaks out: Charlie is in the intensive burn unit at the University Hospital because he is burnt to terrible blistering on his ankles, lower legs, upper legs and lower torso. Why there? Why not on his knees and upper torso?

Because Charlie was put into an empty bathtub, and scalding water was run in, and poor Charlie can't speak, nor turn knobs. Those who would be held responsible are mum and frightened and I am horrified and disgusted beyond words.

JULY 1. There is a fire in the kitchen ceiling. Smoke fills the room, I shut down circuitry, the firemen arrive and Nadia is shrieking I told you so! I told you so! at no one in particular. It is a conduit in the lighting element that has gone bad. The smoke clears, the shift continues, and I realize that dinner is going to be late, and cold, once again.

It does not bother me as it might have two months ago. The irrational, the unexpected – both have lost their usual meaning to me. They are the constants, the usual, the given.

But I wonder vaguely if I am missing something. What circuits must be shut down? How much blackening smoke to see the fire beneath the surface?

JULY 4. The special picnic is today. It is planned in advance, there are to be barbequed hamburgers and fruit salad in watermelon bowls and potato salad and chips and even a bakery cake, and punch. Special orders have been placed for the meat and produce. They do not arrive. I call the Produceman and Meatman in the afternoon again because I am worried about this and both tell me that I should have been told two days ago that they have refused to deliver any more food until the bills in arrears have been paid. Henry The Administrator was the one who received this message; he is also the one that pays the bills. Emergency runs are made to the commercial grocery stores and the picnic goes on, but I think Jesus H. Christ, I don't even believe this anymore.

JULY 5. A patient enters the kitchen, exposes himself to me, then turns around and defecates on the floor. I don't absorb this too well, though, because word is passed that Charlie died today, of the burns and staph pneumonia. The cause of death was marked "natural."

Charlie's genitals were blistered out of existence, and now his death is lied out of existence, and my mind just does not function too well anymore, at all. And then my circuits break, and I am broken, and on fire, and I take off my apron, weeping, because I cannot NOT see what there is to see; and I walk out the door, because I cannot NOT know what there is to know, and I never, ever, return, because I cannot feel but what there is to feel. And I leave Henry and Lyle and all the hungry others to feed off the broken bodies and minds; leave Ruthie in the dumpster, the Saliva Five, Walter dying and everyone else except Violet and Charlie, who are dead, and smell the smoke and simply wonder where the first flames will be noticed.

(A letter from Annie.)

Dear Jim,
I called out your name when I took a nap.
When I called out your name I
screamed. I shook my head, and I
said Jim come to me or I will die.
Can I go bananas or out the door?
I now you will say no, you can not.
I will say darn, darn, darn!
you are real cute and special to me,
I like the way you smile and walk.
When you came around the corner of
The table you scared the heck out of
Me and Sophie. I know when you
come on work, 4:30, Why don't you
Bring my tray sometime? you be so
special to me. Well I better close this
for now. May God be with you.

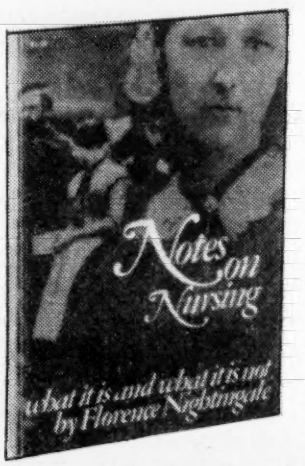
The End ■

Notes on Nursing

From home care to special ward, this guide to "think how to nurse" by Florence Nightingale, first published in 1859, is still the finest book on nursing, according to Dr. Richard Lamerton of St. Joseph's Hospice in London. It articulates the basics of bedside care in a way no advance of technical medicine has been able to improve on.

—SB
[Suggested by Richard Lamerton]

Notes on Nursing
(What it is, and what it is not)
Florence Nightingale
1969; 140 pp.
$2.00 postpaid
from:
Dover Publications, Inc.
180 Varick Street
New York, NY 10014
or Whole Earth



In watching diseases, both in private houses and in public hospitals, the thing which strikes the experienced observer most forcibly is this, that the symptoms or the sufferings generally considered to be inevitable and incident to the disease are very often not symptoms of the disease at all, but of something quite different — of the want of fresh air, or of light, or of warmth, or of quiet, or of cleanliness, or of punctuality and care in the administration of diet, of each or of all of these.

•

One hint I would give to all who attend or visit the sick, to all who have to pronounce an opinion upon sickness or its progress. Come back and look at your patient *after* he has had an hour's animated conversation with you. It is the best test of his real state we know.

•

There is no better society than babies and sick people for one another.

Nursing Homes: A Citizen's Guide

How to organize, fund, and operate a local citizen's action group to work toward reforming the ghastly conditions found in many American nursing homes. This book, by two members of the Gray Panthers, teaches:

How to keep government watchdog agencies on the ball.
How to use the media to publicize abuses.
How to compile a local directory of nursing homes.
How to recommend and lobby for laws promoting higher nursing home standards.

Nursing homes now house over 1.2 million Americans, almost all of them elderly. Our culture's curious prejudice against its elders is nowhere more evident.

—Tom Ferguson

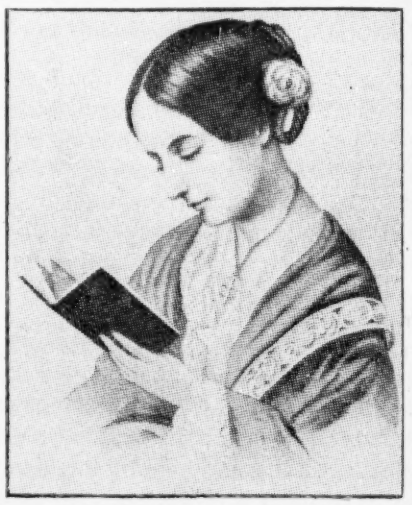
Nursing Homes
(A Citizen's Action Guide)
Linda Horn and Elma Griesel
1977; 190 pp.
$2.95 postpaid
from:
Beacon Press
c/o Harper & Row
Keystone Industrial Park
Scranton, PA 18512
or Whole Earth

Nursing in Society

An excellent view of nursing from primitive to modern times, from the tribal wise woman to the independent practitioner to the dependent subservient "handmaiden," to . . . It's comforting to know that nursing was going on its organismic way long before medicine gave up witchdoctor garb and entered the realm of science. For those who know something about history, this book offers an interesting slant: disease was the cause of major historical changes. The book also lets you know what sort of people have been part of the history of nursing. It could make you proud. In respect to recent historical developments, it could make you fume.

—Jeffrey Ciucias

Nursing in Society
(A Historical Perspective)
Josephine A. Dolan
1916,1973; 344 pp.
$9.00 postpaid
from:
W. B. Saunders Co.
West Washington Square
Philadelphia, PA 19105
or Whole Earth



Florence Nightingale

Miss Nightingale and her band were assigned to the base hospital at *Scutari*, across the strait from Constantinople (now Istanbul). Here in a beautiful setting was the great Barrack Hospital, supposed to accommodate 1700 patients. At that time there were between 3000 and 4000 sick and wounded, and *four miles of beds*. Miss Nightingale and her 38 nurses were given charge of 1500 patients. . . .

There were no basins, few utensils of any sort, no soap and no towels. There were no knives or forks so that the men ate with their fingers. It took four hours to serve a meal, and most of it was not edible. There was practically nothing that a very sick man could eat. There was no night nursing; the men, left alone in the dark, spoke of the terror of it. With these conditions, the death rate was *42 per cent*. . . .

In two months she had transformed the hospital into an efficiently managed institution. In six months she had reduced the death rate to *2 per cent*, and had won the respect of most of the surgeons; Lord Raglan, the Commander-in-Chief, gave her his cordial support. Because of her sanitary improvements and the provision of good nursing care for patients, Miss Nightingale reduced the mortality rate from 427 per 1000 in February, 1855, to 22 per 1000 in June, 1855. She utilized the scientific method of gathering data and was skilled as a statistician, presenting the factual evidence in a most graphic way. Dr. C.E.A. Winslow referred to her as the "Lady with the Slide Rule," as well as a lady provided with the lamp of compassion and the broom of efficiency.

Nursing home reformers cannot be sissies. Reform is hard and controversial.

•

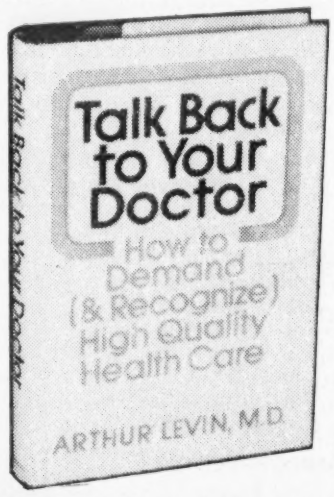
The new citizen action group should not create a trap for itself by making negative or positive judgments and evaluations based primarily on hearsay without first visiting the facilities. The group should either visit all the homes or a random sample of both the "good" and the "terrible" as well as those that fall somewhere in between. Although it is definitely important to identify those "terrible" homes, it is equally important to identify those facilities offering safe, high quality care, the very best in the community.

Talk Back to Your Doctor

The principles of good medical care, spelled out and explained so that you can judge the care you yourself receive. The process of diagnosis, the standard steps in a doctor's visit, lab tests, seeking a second opinion, going in for surgery. Best book on medical consumerism we've seen.

—Tom Ferguson

Talk Back to Your Doctor
(How to Demand [& Recognize] High Quality Health Care)
Arthur Levin, M.D.
1975; 245 pp.
$7.95 postpaid
from:
Doubleday & Co.
245 Park Avenue
New York, NY 10017
or Whole Earth



Principle: In general, the oldest drugs are the safest ones.

These are the drugs about which most is known. Their side effects and adverse reactions have been best and longest studied. The best doctors will use these "established" drugs in preference to newer ones, whenever they can.

•

Principle: You should choose a hospital which trains interns and residents and, if possible, one which is also affiliated with a medical school.

In the **Ladies' Home Journal** list of "best" hospitals, all were "teaching hospitals" (interns and residents), and all except a couple were medical school-affiliated.

Overwhelmingly, doctors themselves choose such hospitals for their own or their families' care. And with good reason. In the Columbia hospital studies, chances of getting sub-standard care were *more than three times as high* in hospitals without medical school ties.

•

Principle: **If you can, avoid entering the hospital before weekends or holidays.**

One hospital administrator I know suggests that Tuesday (or Monday night) is probably the best time to enter the hospital. This,he explains, is the time when the hospital, and its staff, has recovered from the weekend and is probably most productive.

•

Principle: You should beware of any doctor who treats by injection.

This is particularly true if the doctor is unwilling to tell you what he is injecting, or if he says you need a "series of shots" to cure your illness.

There are very few adult conditions (with the exception of an acute asthma attack, heart attack, and other real emergencies) which require injections. Diabetics need injected insulin, but they can be taught to give it to themselves at home. Patients with "pernicious anaemia" do need monthly B12 injections, but this is the only disease for which B12 is needed — and it is a very rare diagnosis indeed.

Mercurial diuretics are injected drugs which are used in patients with heart failure and fluid retention. These drugs, too, can be self-injected, like insulin, after instruction. *They should not be used as "diet" drugs, however.*

With these and a few other exceptions (cancer chemotherapy, for example, and desensitization shots for various allergies) the use of injected drugs by a doctor in the long-term treatment of adults is cause for suspicion.

Dying of curiosity

Dear Stewart,

Your calling my attention to the speech by Kübler-Ross is worth a renewal subscription. When Kübler-Ross says there is no death, then I must take this proposition seriously. As a scientist this means asking questions, and suggesting methods for answering them.

Query: Is this only for humans, or also for other life forms? Possible observations — do people ever report being met and guided by a deceased pet?

Query: If this happens for adults and children, how young can one be and have an after life? Method — many fetuses are aborted; what is the youngest offspring ever reported as greeting?

Methodological Query: Can this be deliberately explored? If someone desires to be killed and resuscitated, they might be able to deliberately study the near edge of the far side. (Could this develop to a rite of passage so that all would know what death was?) Is there a "gentle" way to kill? Perhaps the "diving reflex" reported in the August 1977 **Scientific American** could give the explorers 30 minutes of out-of-body time. (The diving reflex occurs when a person's face is immersed in water colder then 70° F. It slows the heart beat and constricts the peripheral arteries shunting the blood to heart and brain.) What is the morality of starting such exploration? If this can be developed as a method, then we might be able to answer such queries as:

Q: Will two people dying together perceive each other's out-of-body form?

Q: Do the beings on the far side include extra terrestrials, that is, some beings who lived in a physical form elsewhere in this universe?

Q: Is the experience able to convince the dubious?

Q: Is there a culture-free morality implied?

Sincerely,
Bill Gale
S. Orange, New Jersey

Busy dying

Dear CQ,

So far I've been told that my time on this planet as a conscious being was;

- not important because I'm going to die anyway
- very important because soon enough I'll be dead
- serious business because I'll be born again
- no big deal because there is no death

ho hum

Max Krimmel
Boulder, Colorado

Anita sucks fruits

In a rare display of solidarity with anybody, we encourage support of the gay community's reprisal on Anita Bryant's attack on homosexuality. Since she is still employed as the voice of Florida orange juice, you can vote against her position by boycotting her product. **Mother Jones** *reports, "Brands that are all right to drink are Belair Concentrate, Bonnie Hubbard, Safeway Concentrate and Scotch Treat. Other brands are made from Florida oranges and should be boycotted."*

—SB

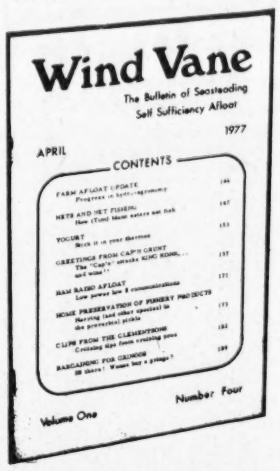
Nomadics

Wind Vane

"Seasteading?" Yup. That's living on your boat. This lively quarterly is written by seasteaders for seasteaders, with increasingly useful reader response being the most interesting feature. I harbor (so to speak) unrealistic dreams about living on a boat, and this sort of publication tends to encourage total derangement.

—J. Baldwin

Wind Vane
(The Bulletin of Seasteading
Self Sufficiency Afloat)
Jo Anna Brown, editor
$6.00 /yr (4 issues)
$7.00 /yr first class
from:
Wind Vane
P.O. Box 2877
Santa Cruz, CA 95063


Wind Vane
The Bulletin of Seasteading
Self Sufficiency Afloat
1977
APRIL
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Volume One
Number Four

Bargaining is not the way of retail business everywhere . . . but it is the way in enough places so that you must be adept at it if you would go the seasteading route. . . . It isn't just a quaint way of doing business. It's the real thing and you spell it $$$ . . . money in your jeans when there might be none. The first thing you must get over is the idea that an object has one and only one fair price. That's not true anywhere. A fixed price means that someone has enough clout to fix it. Value, on the other hand, is a function of the situation.

•

Bonded Locker

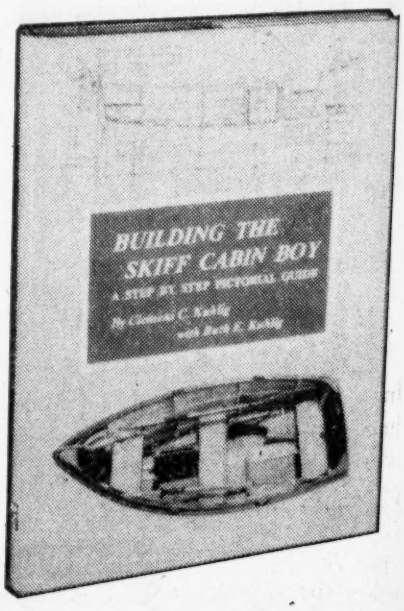
For international travel, *Eleuthera* is equipped with a locker that can be locked and sealed by customs officials. (The sealing device looks like the wire-and-lead dodad used to seal electric meters.) The locker can be any enclosed space — even one entire hull of a multihull — but it is best to have it inconspicuously located. The door can be made tamper-proof by using blind hardware, with just a hasp and padlock emerging in a shadowy position. Something must protrude to allow attaching the seal. Inside this locker can be placed such items as: bonded liquor or other taxable stores (for use only at sea); medical narcotics (if you're going into remote areas); fire arms (if you carry them); anything else you may wish to lock up (instead of hide elsewhere on board). The purpose of this space is to provide storage for anything on board which the customs regulations prohibit coming ashore, but which is rightful ship's property. The customs official can seal the locker when you enter his country, and he can examine the seal when you are ready to leave.

Building the Skiff Cabin Boy

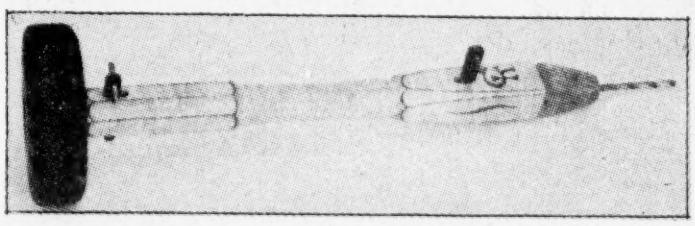
In the last CQ *we showed a couple of good books on boat-building-as-a-worthy-skill-that's-also-good-for-your-head. This book takes you inside the head of a master craftsman as he meticulously constructs a specific skiff. It's the most intimate, highly detailed instruction I've ever seen. If I were a bookstore owner, I'd have this with* Zen and The Art of Motorcycle Maintenance *in the philosophy department. Nice skiff too.*

—J. Baldwin

Building the Skiff Cabin Boy
Clemens C. Kuhlig with
Ruth E. Kuhlig
1977; 140 pp.
$12.50 postpaid
from:
International Marine
Publishing Company
21 Elm Street
Camden, ME 04843
or Whole Earth



A close-up of the boathook, showing the small leather strips attached to both points to keep the hook from damaging any surface it may hit. The leather also protects the hook itself.



The bow drill is very practical: it can be carried anywhere and can even be used on a boat with little difficulty. The wedged handle and bit placement make it very storable, yet it is used easily. The bits are the same size as those used in the brace, so they may be inserted in either tool. The bits are secured in the wooden chucks with molten lead.

Gore-Tex again. . . .

Jack Stephenson, maker of backpacking equipment of advanced and sometimes controversial design (CATALOG, p. 263, EPILOG, p. 660), has this to say about Gore-Tex:

GORETEX is a fascinating new material which we've been testing since 1975. The objective was to make a porous yet waterproof fabric which wouldn't need the regular treatment with repellants of the various cotton containing porous rain-jacket fabrics, or the need for complex multi layer construction, like Synergy does so well (but very heavily). The objectives were met, and the fabric makes nice jackets. The only problems we know of are high cost, heavy and stiff due to 3 layers of material, 2 layers of adhesive, very poor wear resistance when the back layer is cheap nonwoven fabric which also acts as a wick to rapidly spread water when a leak occurs, and a tendency to leak badly when dirty. Dirt apparently acts as a detergent wetting agent and nullifies the repellancy of teflon layer. Washing with mild soap (NOT detergent) and rinsing well restores waterproofness. Thus if you buy a rain jacket of Goretex, be sure the backing fabric is a woven fabric like outer fabric, and keep it clean.

Goretex is not useful for tents because of its porosity which interferes with controlled, differential height venting until it has caused enough condensation to fill the pores and thus cure the porosity. You would thus end up with a lot of condensation to dry out, and if the condensation is frost it will not shake off as it would on a coated fabric, and may damage the fabric. It is thus ridiculous to use a heavy, expensive fabric with all these problems simply because it is something new.

Goretex has been suggested, and even used on outside of sleeping bags, "so you can lie out in the rain without a tent". But, why add the weight of a tent to your bag to avoid the tent, and how do you expect to get in and out of the bag in the rain without other rain shelter? More important though is the condensation problem. Once Goretex gets wet it does not breath, so without vapor barrier on inside of bag the humidity given off in the bag condenses in the bag and soaks the insulation.

For more information on Stephenson's latest designs, send $1.00 to Stephenson's, RFD 4 Box 398, Gilford, NH 03246.

—J. Baldwin

Communications

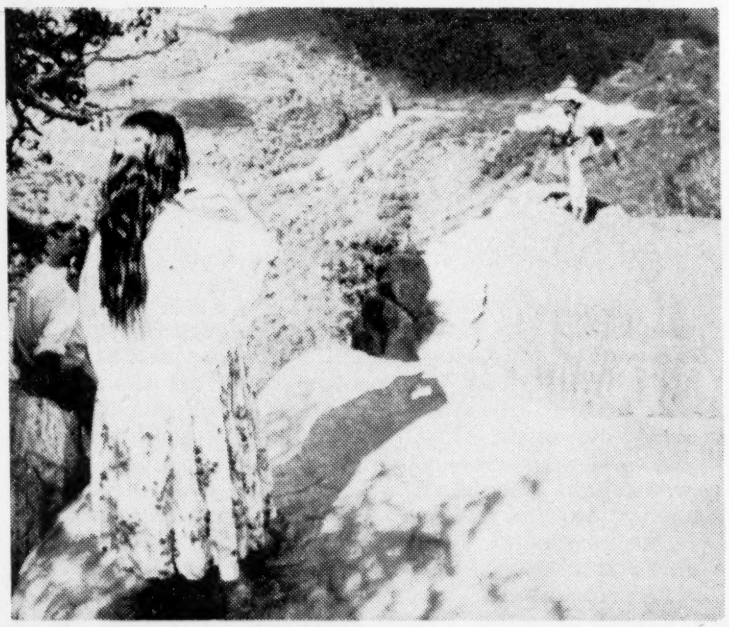
Artscanada

During the past ten years of her editorship, Ann Brodzky has made Artscanada *the most informative, most unpredictable, and best designed art mag published in the English language. Every issue is built around a theme: shamanism, west-coast art, maps, contemporary drawing, etc. Writers are brought in as needed to contribute their special expertise; regular contributors are few in number and more or less relegated to the gallery review section in the back pages. This policy of high diversity from issue to issue has prevented* Artscanada *from institutionalizing itself as an arbiter of taste and value within the art marketing system, has kept it free and credible as an information source. In general, the emphasis is on research rather than gossip, ethnography rather than trendwatching. Some issues are so extraordinary (like the shamanism issue, Dec. '73/Jan. '74) that they reappear as hardcover texts at ten times the original newsstand price. Their coverage of Eskimo and Northwest Indian culture is particularly good – to the point where white "mainstream" artists in Vancouver and Toronto complain about being slighted. Since* Artscanada *receives a partial subsidy from the national government (as do most Canadian art organizations), such complaints can translate into political pressure. A growing subscribership is their best defense.*

–Robert Horvitz

Artscanada
Ann Trueblood Brodzky, editor
$20.00 /year (6 issues)
$3.50 /single issue

from:
Artscanada
3 Church St.
Toronto M5E 1M2
Canada



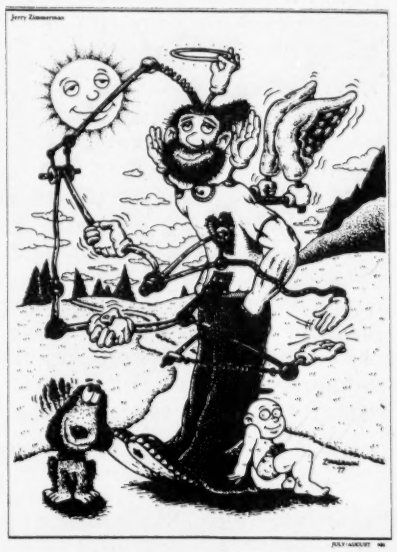
A Huichol shaman demonstrates the concept of metaphysical equilibrium by "flying" from rock to rock at the edge of a spectacular waterfall.

Quest

CQ readers will probably be interested in the high content quality and good-news approach of this new magazine. It's more uptown slick than we are, and East coast based, so our niches don't overlap too much. It's a pleasure for me to find stuff I wish we'd printed.

–SB

Quest/77
Robert Shnayerson, Editor
$12.00 /yr (6 issues)
$2.00 single copy
from:
Quest/77
P.O. Box 3700
Greenwich, CT 06830



It is 5 a.m. In a Manhattan apartment near the American Museum of Natural History, a small, feisty woman of 75 wakes up. She contemplates her dreams and the insights they contained. "Now that's interesting," she muses. "I wonder what that was about?" She observes her mental images – vivid, prolific, teeming from the cornucopia of memory and reflection. She begins to rehearse a critical speech she will soon give on the human uses of science. She remembers an appalling exhibit in Copehnagen: a man tried to create human beings and instead made grotesques. Her body responds to the degradation of treating people as objects – "target populations"... "human inventories." She recalls dozens of scientific studies that objectify the human condition. She thinks of her audience and sees them as strangely deficient in music and art, eyes veiled, ears stopped up. A sweep of Beethoven races through her, a sense of standing before the David, *and then looking up at the Sistine ceiling. These images give way to pictures of Early Man, pitiful, helpless, with his arms full of sticks; then to a memory of a New Guinean friend, savage in 1928, intellectual in 1953. Images join images, words appear suited to form, and a complex and potent speech unfolds. The woman decides that it is time to get up and go to work on the typewriter. Her eyes open, and Margaret Mead climbs out of bed.*

–Jean Houston

Human Behavior

Psychology Today *can now go gratefully out of business, since this magazine does the job better. More real news, more insightful comment. It is, for example, the only magazine that has questioned the current national hysteria about child pornography. (What is going on, Richard Currier suggests, is suppression of graphic proof that juveniles enjoy sex.)*

–SB

Human Behavior
(The Newsmagazine of the Social Sciences)
Marshall Lumsden, editor
$14.00 /yr (12 issues)

from:
Human Behavior
Subscription Department
P.O. Box 2810
Boulder, CO 80302

As far as sexual relations between children and adults are concerned, they may be strictly taboo in our own society, but they are fairly common throughout the total range of human societies. Child brides in India, aboriginal Australia and other preindustrial societies often began sleeping with their (adult) husbands two or three years before puberty. The Australian aborigines, in fact, believed that a girl could achieve sexual maturity *only* as a result of regular intercourse with a grown man. At the same time, it is a common practice throughout the world for young boys and adolescents to be taught some of the fine points of sex by adult women who are experienced and skilled in these affairs. In some preindustrial societies, in fact, this practice was considered part of a young man's formal education. . . .

The point is that Western society has undergone a revolution in sexual values but has tried to apply it exclusively to adults, and this rather arbitrary restriction is simply not working. How *do* we explain to our kids that while sex is natural, healthy, normal and good, they should refrain from enjoying it until they grow up and leave home? More to the point, how do we explain it to ourselves?

Beyond Modern Sculpture

Jack Burnham is one of the most provocative and perceptive writers on art that I know of. He made his critical debut with Beyond Modern Sculpture *and in my opinion it's still his best book.* BMS *is nothing less than a total reconstruction of the development of twentieth-century sculpture in light of the transition from a split mechanist-vitalist worldview to an integrated techno-cybernetic systems worldview. From this perspective, scattered trends and stylistic innovations that, in standard art histories, seem merely interesting or idiosyncratic, suddenly gel into a meaningful pattern: what Burnham is describing is a paradigm-shift as profound as the one marked by the emergence of abstract art some 60 - 70 years ago.*

With the rapid expansion of technology in this century, the hand-crafted-object tradition of sculpture finds itself overwhelmed and undermined by the complex artificial systems that characterize industrial society. Looking at the situation with perverse optimism, Burnham sees this as redefining the meaning and future direction of sculpture, not as rendering it obsolete. In order to establish precedents for a certain range of new options, he reviews the development of some long-ignored "subsculptural" genres: mechanical dolls, programmed-light-displays along the Las Vegas Strip, clocks, calculators, music boxes, Grey Walter's "tortoises," and other modern automata. This material is fascinating, but is included mainly to set the stage for some heavy prognostication:

> Unless the world is substantially altered for the worst, the logical outcome of technology's influence on art before the end of this century should be a series of art forms that manifest true intelligence, but perhaps more meaningfully, with a capacity for reciprocal relationships with human beings . . .

Pressing the argument further:

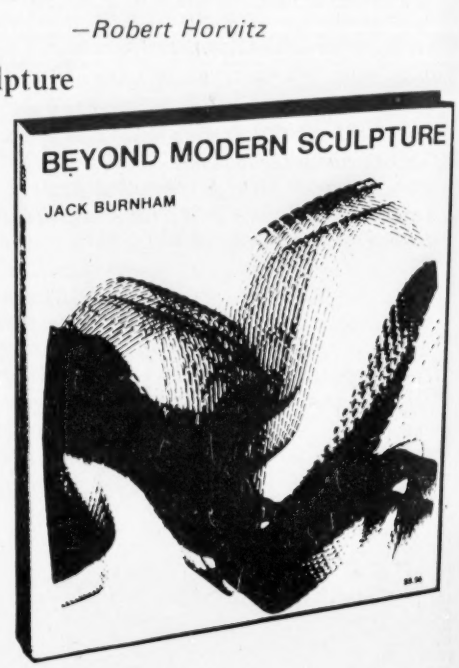
> It is a thesis of this book that formalist and vitalist sculpture represent two preparatory steps which symbolically anticipate the re-creation of life through non-biological means, that is, through technology.

And, to polish it off, he cites a book by MacGowan and Ordway called Intelligence in the Universe *for some lengthy quotes about the inevitability of the transition from "born-in-the-wild" organic lifeforms to synthetic inorganic lifeforms, once it becomes technically possible.*

*It's a full-blown Faustian vision, intoxicating but chilling. Caught up in the resolving power of his own version of recent art history, and thoroughly awed by the technological juggernaut (*BMS *was written in 1967), Burnham goes somewhat overboard on the historical determinism angle. Most of his more recent writings have been devoted to counteracting this excess and emphasize the semiotic, ritual, and mythic content of art. But whether or not one agrees with him on the future direction of sculpture or its inevitability, his outline of the principles of "systems esthetics" crystallized the paradigm he foresaw as immanent, and that is a real accomplishment. Work like Burgy's and Sonfist's and others who will appear in future* CQ's *could never have flourished without Burnham's theoretical – and sometimes personal – support.*

–Robert Horvitz

Beyond Modern Sculpture
(The Effects of Science and Technology on the Sculpture of This Century)
Jack Burnham
1968, 1975; 402 pp.
$8.95 postpaid
from:
George Braziller, Inc.
One Park Ave.
New York, NY 10016
or Whole Earth



In the past our control of nature was never absolute, but a more tenuous, one-sided partnership in which we fearfully respected the sporadic, if incredible, powers of our surroundings. It may be that man psychically thrived on ignorance concerning his exact position in the universe – and perhaps the secrets locked within the mute sculptures of many past ages are symbols of confidence in this natural unknown. They at any rate seem to be symbols which we increasingly eschew today.

•

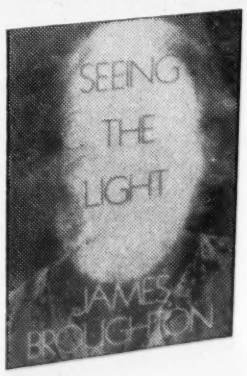
The cultural obsession with the art object is slowly disappearing and being replaced by what might be called "systems consciousness." Actually, this shifts from the direct shaping of matter to a concern for organizing quantities of energy and information. Seen another way, it is a refocusing of aesthetic awareness – based on future scientific-technological evolution – on matter-energy-information exchanges and away from the invention of solid artifacts. These new systems prompt us not to look at the "skin" of objects, but at those meaningful relationships within and beyond their visible boundaries.

Seeing the Light

I wish everyone would do a book like this, made of the things they say to themselves to keep themselves doing what they do well. Embarrassing stuff – bombastic, personal, and wholly invaluable to anyone else trying to do something well. The revelant here is avant-garde filmmaker James Broughton.

–SB

Seeing the Light
James Broughton
1977; 80 pp.
$2.50 postpaid
from:
City Lights Books
1562 Grant Ave.
San Francisco, CA 94133
or Whole Earth



Making a film is a more hazardous act than looking at one. For you will create a dream. Whereas dreams themselves are natural events which happen to us. You will create a dream for others to dream and to be dreamed by.

•

Excellent strategy: do what you are most afraid of doing. Look what Brakhage did. He has always feared death intensely, it has been a constant threatening imminence for him. So, with the courage that has always made him a trailblazer, he took his camera tightly in hand and went into the city morgue of Pittsburgh and looked closely and filmed unforgettably the forms of death as they had never been seen before: *The Act Of Seeing With One's Own Eyes.*

•

The avant-garde task is to deal with what nobody else is attending to. This keeps widening human consciousness and keeps balance in the universe.

•

Oz is a place all poets should visit once a year. . . .

Oz is of a different order of nonsense from Zen.

Zen is where you see what is. Oz is where you see what isn't.

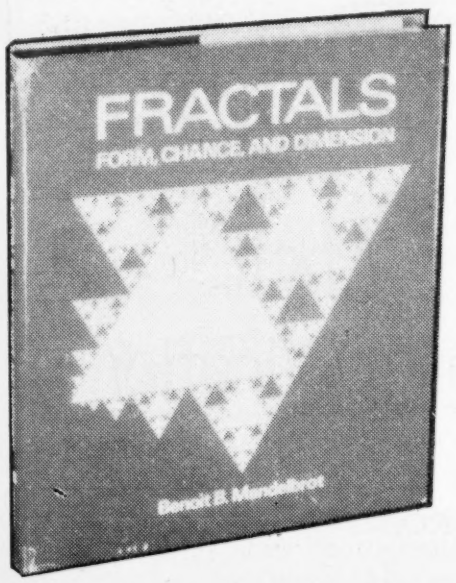
Zen is here, Oz is there. Far out there.

Oz is where there are no parents, no teachers, no preachers, no police, no experts, no press, and no need of them.

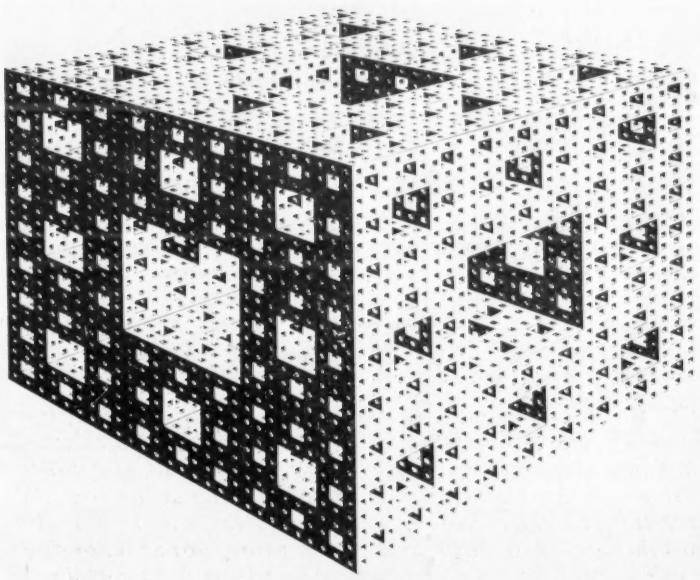
Fractals

Many natural phenomena worth study are highly irregular. The central notion presented in this engagingly written volume, the concept of fractional dimensions, is both profound and useful in areas involving such disparate subjects as Brownian motion, coastline lengths, the density of matter in the universe, curdling, moon craters, the distribution of salaries and the meanders of rivers. The book is beautifully produced, and is filled with computer graphics illustrating the various ideas. It is also here and there decorated with appealing graphics accidentally produced by programs containing bugs. As with Rene Thom's Catastrophe Theory, Benoit Mandelbrot's **Fractals** *is a heartening and illuminating application of advanced mathematics to the beautiful, irregular, enigmas of the world.*

—Marc Le Brun
[Suggested by R.W. Gosper]

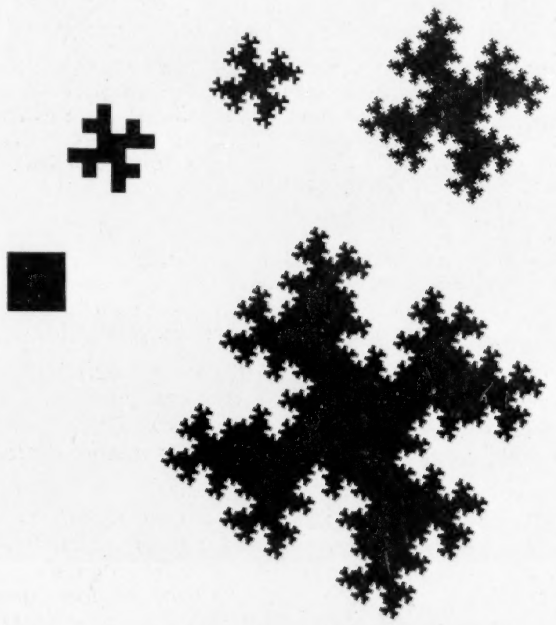


Fractals
(Form, Chance and Dimension)
Benoit B. Mandelbrot
1977; 365 pp.
$14.95 postpaid
from:
W. H. Freeman & Co.
660 Market Street
San Francisco, CA 94104
or Whole Earth



The Sierpinski Sponge

Its area vanishes, while the total perimeter of its holes is infinite.



Curdling will designate any cascade of instabilities resulting in contraction.

Curd will be used to designate a volume within which a physical characteristic becomes increasingly concentrated as a result of curdling.

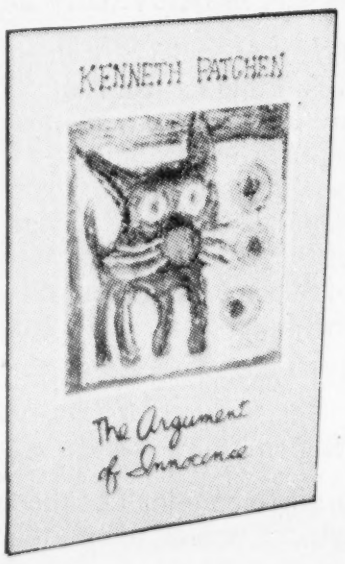
Whey will therefore be a natural choice (incidentally, a choice Miss Muffet should not mind) to designate the space not occupied by curds.

The Argument of Innocence

Like William Blake, Kenneth Patchen did some of his most interesting poetry in illuminated form — small one-page picture poems that have appeared in a number of New Dimension paperbacks. But I never realized until this book, which is printed in COLOR, how glorious Patchen's vision is. This is an essential companion to Collected Poems of Kenneth Patchen *($5.25 from New Directions).*

—SB

The Argument of Innocence
(A Selection from the Arts of Kenneth Patchen)
Kenneth Patchen
1976; 95 pp.
$7.50 postpaid
from:
The Scrimshaw Press
6040 Claremont Ave.
Oakland, CA 94618
or Whole Earth

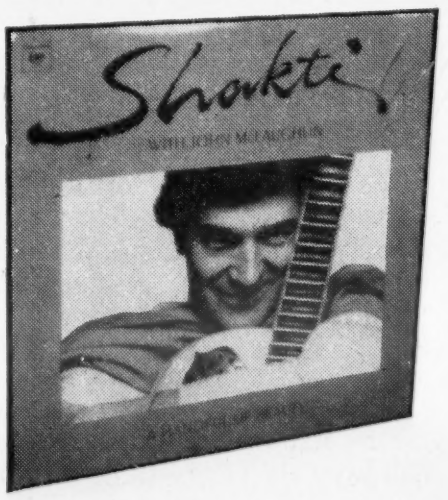


A Handful of Beauty

We don't usually review records, unless we come across something of complete virtuosity of concept and rendition, as here, with glee. It's by John McLaughlin's new group called Shakti — Indians all, except him. The only fusion of Eastern and Western music I've heard that surpasses both.

—SB

A Handful of Beauty
Shakti with John McLaughlin
Columbia Records
51 W. 52nd Street
New York, NY 10019



If the Spirits of the Dead Do Walk Among Us

Where Do They Spend Their Summer Vacations?

BY ROBERT GOLDMAN

The Silver Belle

The author is an advertising copywriter in San Francisco. —SB

I have seen a ghost.

You can, too. If you're lucky, sincere and either brave or crazy enough to visit a vacation resort that offers zero recreational facilities, few creature comforts, and the most dreadful accomodations this side of the crypt.

Welcome to Silver Belle, in Ephrata, Pennsylvania. The summer spot for spiritualists and for spirits, too.

Once a luxury hotel – the Mountain Springs Resort – Silver Belle today stands three rickety stories high, gingerbreaded with distressed balconies and held together primarily by fireproof shingles and dust.

Few hotels could more repel guests or attract spirits.

Silver Belle offers the visitor more than two hundred rooms from which to choose. All are priced less than five dollars per night. And all are overpriced. My room at Silver Belle was one of the hotel's thirteen "visitor's attractions." Even for $3.50, the President Henry Harrison Room was less than a bargain.

Connected to the lobby by three flights of dank, creaky stairs and a Marienbadish-to-worse maze of hallways, the Henry Harrison Room was illuminated by a bare bulb hanging from a threadbare wire. There was one small window that would not close. There was one small window that would not open. Dust reigned supreme.

The only attempt at decoration was an unframed picture of our ninth president. In the door was a man-sized hole, covered with cardboard. Was this where a ghost broke in? Or where a guest broke out? It could have been either. And either guest or ghost could have been Henry Harrison.

Founded in 1932 by an enterprising medium, Mrs. Ethel Parrish Post, Silver Belle is named for her spirit guide, an Indian maiden. A portrait of Mrs. Post, oil on canvas, dominates the hotel lobby. Only a person insensitive to the serious purpose of Silver Belle would notice the lady's resemblance to the foil of the Marx Brothers, Margaret Dumont. A portrait of Silver Belle herself, oil on velvet, hangs behind the pulpit in the hotel chapel.

This juxtaposition of Christianity and spirit Indian maidens represents spiritualism's posture as a formal religion. Such was not always the case.

In the second half of the nineteenth century, a more spirited version of spiritualism swept America. The

craze began with three young girls, the Fox Sisters, who reported hearing spirit knockings in the bedroom of their Hydesville, New York farmhouse. The townspeople investigated the phenomena. Sir William Crookes, a Nobel Prize winner, substantiated the results. And a program of personal appearances and scientific demonstrations were arranged by that noted mystic, P.T. Barnum.

Later, the Fox Sisters confessed to having entered "the school of hard knocks" by cracking bones in their feet. No matter. There were seances in every parlor and mediums on every vaudeville stage.

The spiritualism movement rooted firmly in England. Its champion, Sir Arthur Conan Doyle, dispatched Sherlock Holmes to the world of the spirit, the better for Conan Doyle to concentrate on his spiritualist writings and lectures. In the United States, Harry Houdini became spiritualism's Ralph Nader. Houdini exposed theatrical mediumship with such vigor that the remaining spiritualists changed themselves into religious leaders. As such they operate today; in the wrinkles of Twentieth Century Life; in towns small and large; and at Silver Belle – one of America's two remaining "spiritualist camps."

In operation, Silver Belle is not unlike more worldly resorts. As a guest, your day begins at The Office of The Medium's Secretary. Here you choose from the daily menu of spirit activities. On an average unusual Silver Belle day the possibilities might include a Spirit Trumpet Seance, a Dr. Zemo Healing Seance, Automatic Writing, Spirit Photography, or a Direct Voice Spirit Indian Pow-Wow. Also available: individual seances with any of the half-dozen "mediums-in-residence."

Silver Belle features the American Plan. "You picks your seances and you pays your fees." Five dollars per seance per person. Traveler's checks are welcome. Credit cards are not accepted.

At a typical Silver Belle seance, you are likely to be one of ten or less participants, distributed around the perimeter of a windowless, air-conditioned, concrete-block seance room. At one end of the room is a spirit cabinet – the black draped armoire in which the medium sits and from which the spirits emerge.

For mortals, the seance room has one exit. Double doors. Doubly locked.

Like travelers in any country, visitors to the land of the spirit must be prepared to learn the local customs. For example: ghostly etiquette demands that one never touch the pseudo-scientific substance of a spirit. This "ectoplasm" remains attached to the stomach of the medium. If touched, the ectoplasm could snap back with such ferocity that the medium could be burned, or killed. "Or exposed," adds the cynic.

Seance etiquette also requires that a participant be prepared to actively communicate. To strengthen the spirit connection, conversation "across the curtain" should never lag. Traditional replies to spirit voices include "thank you" and "God bless you."

But replies to whom?

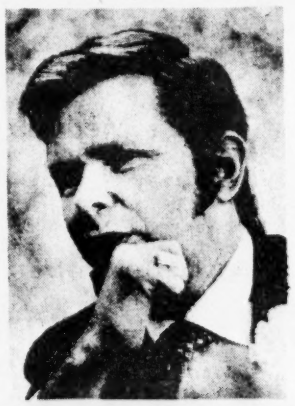
At the Silver Belle seances that I attended, the top-ranked spirit guest was Thomas Edison. Spiritualists believe that Edison died a believer. At my seance, he returned from death to bring us a piece of news, the importance of which, I must admit, transcends my understanding. According to Edison's spirit, automobiles of the future will no longer require headlights. Instead, the highway pavement will be illuminated. Over and out.

Also returning, in voice only, were Brigham Young and Henry Hudson. The former announced his displeasure with the latest crop of Washington politicians. The latter informed me that he would be my personal "spirit master." Hudson's arrival also illustrated one unique aspect of spirit communication. He began our conversation with the story of his own grisly death.

As long as the spirit connection holds, one is free to ask questions. One is free to ask but must expect the only kind of reply – positive. "Wayward children will return home." "The sick will regain their health." "The dead are happy." These answers may ease the minds of the participants, but they hardly auger well for intellectual life beyond the grave; nor interesting seances make.

For true believers, Silver Belle is both a spiritual experience and an annual vacation. It is also a summer-long spiritualist's convention. The guests, mainly women, are at least middle-aged and at most, middle income. Most have outlived husbands and other loved ones. Year after year, they return to Silver Belle to get in the last word.

Participating in "Direct voice" seances represents one of the two most popular activities at Silver Belle. The other – discussing such seances. News of spirit



Warren M. Smith

LECTURER

Materialization – Direct Voice
Independent Voice – Blindfold Billet
Precipitation – Independent Card Writing
"No Private Readings"

Serving Silver Belle the Entire Season

From Silver Belle brochure

messages spread through Silver Belle's Pennsylvania Dutch Dining Room like maple syrup on the morning pancakes.

When not discussing or attending seances, guests of Silver Belle visit the hotel gift shop. Here they browse for postcards and spirit trumpets. There's the well-attended chapel and the equally well-attended ice cream parlor. I also enjoyed sitting on a porch rocker and contemplating the more carnal advantages of the Pennsylvania Dutch countryside: homemade crab cakes, hot bacon salad, Rolling Rock beer.

Yet all these important activities pale before the stellar Silver Belle attraction – actual spirit materialization.

It is the rare medium who can materialize a spirit on schedule. Whether Silver Belle offers real communication, or real con, the psychic and legal consequences of promising and producing a ghost are enormous. As is the time and sincerity required for the new guest to gain admission.

Considering the state of the Henry Harrison Room, one might think that merely spending the night at Silver Belle demonstrates a level of sincerity bordering on the fanatical. In fact, it was only after attending two voice-only seances plus an equal number of visits to the Silver Belle chapel that I gained admittance to one of the two nightly spirit materializations. Good demeanor on my part and good judgment on the part of the mediums, any one of whom can blackball a guest, led to my eventual acceptance. Another guest, a Swiss psychiatrist on a European spiritualist's charter confided spending almost a month at the resort without ever once being allowed into a materialization.

The psychiatrist was a true believer. I doubt the occult so strongly that I eat fortune cookies whole. The paucity of my belief did not matter when it came to gaining admission to materialization. Neither did it matter when it came to experiencing the trepidation I felt when the lights went out and the seance began.

Like all Silver Belle seances, a materialization begins with The Lord's Prayer and hymns. At the materialization I attended, there were thirty participants (at the usual rate, five dollars per.). We were well into the third hymn, "He Walks with Me in the Garden," when The Music began.

No eerie chords or clanking chains here. The sounds that filled the seance room were the undeniably amplified strains of "More," the popular theme music of the early sixties movie, "Mondo Cane." With ninety-nine strings attached.

When the music reached a crescendo, I perceived the silver shape, barely a glimmer, which suddenly began to move and turn and yes, dance. It danced through the reddish half-light of the seance room. No taller than a man, graceful as a ballerina, the luminous figure was white and almost seemed to sparkle as it moved.

If nothing else, the ghost was ghostly.

When the music stopped, the spirit vanished. Like all spirits to come, the ghostly dancer disappeared not into the spirit cabinet but seemingly, through the floor a few feet in front of it.

If this was trickery, this was the best trick of all.

The ghosts that followed were short, tall, fluffy white, or sometimes, flowing shapes with sparkling lights. Some had great bulbous heads. Others seemed to come to a point. A spirit appeared for every participant and each spirit was different in shape and voice. No mean feat of theater, if not spirit communication.

My own spirit master, Henry Hudson, materialized out at six feet two with no eyes at all. Under the reddish ectoplasm safelight, the giant head – bigger than a basketball – seemed to be wrapped in a white gauzy fabric. From a pinch at the neck, long white robes flowed to the floor a few feet in front of me. A very few feet.

The specter stood directly before me, but not for a moment did it stand still. Instead, the spirit constantly undulated; bobbing and weaving like a professional boxer with every move short of the Ali Shuffle.

Henry Hudson brought me information on my past. I had been alive in ancient Egypt where my name was Aman. He also brought me a spirit gift, or "alport." Henry Hudson placed this diamond-shaped crystal in my hand before he returned to his side of the spirit curtain and I returned to my folding chair. Before disappearing, Henry Hudson promised to visit me – that night – in the privacy of my own room.

Minutes later, the materialization ended. The double doors of the seance room opened and we filed out into the warm Pennsylvania night.

Conclusions?

Certainly there is more than one explanation for what I heard and saw at Silver Belle. With equal certainty, I can report that no ghost was so unworldly it could not have been created by an agile medium in a fancy bedsheet. Nor was any spirit message so insightful or amazing that it demanded paranormal explanation.

It leads me to conclude that if Silver Belle offers real spirit communication, the communication should be better. Unfortunately, it also leads me to conclude that if Silver Belle is a fake, it should also be better. This is the kind of doubt with which I am left. Unreasonable doubt, to be sure, but doubt all the same. Perhaps it is this doubt that is the basic attraction of Silver Belle and spiritualism.

One final note:

If the spirit of Henry Hudson did find its way to the Henry Harrison Room – and history teaches us that navigation was never one of Hudson's strong points – he discovered that I had already checked out. A lack of investigatory zeal? Look! I had already spent one night in that ghostly, ghastly resort and while I do recommend Silver Belle as a worthwhile experience, spending two nights is too high a price to pay. Even at only three dollars and fifty cents a night.

At least, that is my excuse for not staying the night at Silver Belle.

What's yours? ■

The "spirit photo" technique was as follows: I sat in a small room with the Silver Belle spirit photographer, a man in his seventies with an old wooden view camera. He snapped the picture of me in the traditional fashion (that is, with lights). Then the lights were extinguished and we sat together in the dark until . . . the spirit moved him. Then he made another exposure.

The picture was mailed to my home several days later. I must report that I do not know the people pictured, though the face in the middle of the top row does resemble Jack Benny, I think. I would love to have him in my spirit aura.

The cost of the spirit picture was ten dollars. Also available at Silver Belle are spirit paintings. It shows, I suggest, the interesting line one walks at the place. If this is a real spirit photo, why isn't it better? And if it is a fake, why isn't it better?

IF YOU GO

Ephrata, Pennsylvania is located at the intersection of Routes 322 and 222, between Reading and Lancaster. It is about five miles from the Pennsylvania Turnpike Interchange at the Reading-Lancaster Road. You can either take a train to Lancaster, a plane to the Lancaster/Reading Airport, or a Trailways Bus to Ephrata.

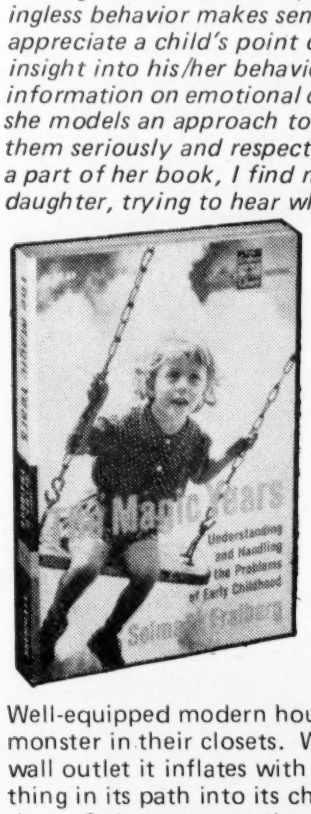
An annual brochure is available. Write Roland L. Riley, Secretary, Silver Belle Association, Ephrata, PA 17522.

It is possible to "drop in" for seances without staying the night, but for admission to a "materialization" you must prove your intentions are honorable. Remember that at Camp Silver Belle, most guests consider spiritualism to be their religion. Fortunately, the resort has not yet been discovered by insensitive tourists of the occult. Also in your favor – the positive attitude of the spiritualists themselves. They want to believe that you believe, too. And after a stay at Silver Belle, you just might. ■

Learning

The Magic Years

I like Burton White's book (right) because it contains good information; I love this book because it has a rare sort of wisdom. Listening to children as Fraiberg listens is an art; like a good detective she probes for clues til seemingly meaningless behavior makes sense. The result is that she's able to appreciate a child's point of view and to offer considerable insight into his/her behavior. She offers not only valuable information on emotional development but, more importantly, she models an approach to understanding children which takes them seriously and respects their diversity. Each time I read a part of her book, I find myself listening more closely to my daughter, trying to hear what she's really telling me.



—Linda Williams

The Magic Years
Selma H. Fraiberg
1968; 302 pp.
$2.95 postpaid
from:
Charles Scribner's Sons
597 Fifth Avenue
New York, NY 10017
or Whole Earth

Well-equipped modern households in Brobdingnag keep a monster in their closets. When hooked up to an electrical wall outlet it inflates with a deafening roar and sucks everything in its path into its chromium-plated jaw. "It's nothing, dear. Only a vacuum cleaner!" *Only* a vaccum cleaner. Dear Lady, I can only hope that one morning you will rise from your bed and encounter a roaring iron monster twice your size, steadily eating a path toward you, its monster guts shrieking with the labor of unspeakable digestion. I can only hope, Madam, that you will ignore the sales talk and take to your heels.

The panda's eye has fallen out. An empty socket and the first glimpse of the cotton entrails that pull out easily now in an urgent, sickening search. And suddenly the panda is a flaccid sack and horror spreads over you. The panda is no more. He is a nothing, and for the first time the thought comes over you that *you* could lose your stuffing and become a nothing. "Never mind, dear. Don't cry so. We can get another panda." "NO! NO! NO!" And no words can be found in this new tongue, the English language, to tell of the dreadful secret tugged from the bowels of the panda.

•

Thirty-month-old Julia finds herself alone in the kitchen while her mother is on the telephone. A bowl of eggs is on the table. An urge is experienced by Julia to make scrambled eggs. She reaches for the eggs, but now the claims of reality are experienced with equal strength. Her mother would not approve. The resulting conflict within the ego is experienced as "I want" and "No, you mustn't" and the case for both sides is presented and a decision arrived at within the moment When Julia's mother returns to the kitchen, she finds her daughter cheerfully plopping eggs on the linoleum and scolding herself sharply for each plop, "NoNoNo. Mustn't dood it. NoNoNo. *Mustn't* dood it!"

•

We need to respect a child's right to experience a loss fully and deeply. This means, too, that we do not bury the dead pet and rush to the pet store for a replacement. This is a devaluation of a child's love. It is like saying to him, "Don't feel badly; your love is not important; all hamsters, all dogs, all cats are replaceable, and you can love one as well as another." But if all loved things are readily replaceable what does a child learn about love or loss? The time for replacing the lost pet is when mourning has done its work and the child himself is ready to attach himself to a new animal.

The First Three Years of Life

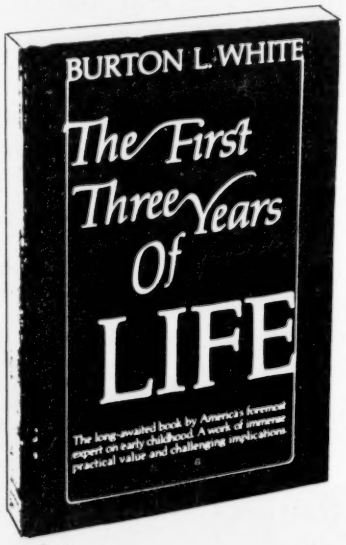
I have the same reaction to this book I have to power tools — I'm impressed by its potential value but a bit afraid of the damage it might do if poorly used. Its great strength is that it provides a very useful framework for viewing a child's development through the first three years of life; it is the best book available on the development of social and intellectual skills during this period. Drawing on observations of a great many children, White identifies the behaviors which seem to distinguish children who are developing unusually well from their less "advanced" peers. He then suggests how parents can facilitate such development through their interactions with their children.

The danger I see in the book is that with our culture's obsession with doing things RIGHT, it may make some parents even more insecure and pushy. White is convinced that much of an individual's personality and intellectual capacity is set by three years of age, and he maintains that only one in ten children get an optimal start in life.

That message can either inspire or tyranize; but if you trust yourself and your child more than any book, White will be very useful to both of you.

—Linda Williams

The First Three Years of Life
Burton L. White
1975; 285 pp.
$5.95 postpaid
from:
Prentice-Hall, Inc.
Box 500
Englewood Cliffs, NJ 07632
or Whole Earth



Encouraging Interest in The Outside World

Whether a child learns to reach for objects at three or four months rather than five or six is probably of no consequence. It has been my experience, however, that *the kinds of circumstances that facilitate the acquisition of the specific skills of the early months simultaneously seem to result in a more interested, cheerful, and alert child.* In other words, if a young infant's world meshes with his developing skills, he not only moves along a bit faster, but he seems to enjoy himself more and to develop a fuller taste for exploration, learning, and enjoyment. *Therefore, good early child-rearing includes seeing that your baby (especially after the first six to eight weeks) is regularly involved in activities that interest him.* After the first ten to twelve weeks he should be actively enjoying himself at least some of the time. This goal is relatively easy to achieve.

•

Do not try to force toilet training. Once a child gets to be about two, he will train himself in a relatively short space of time. Trying to toilet train a child much before two years of age is generally very difficult. If you attempt training when he is between fourteen and twenty-four months of age, you will run headlong into the rise of negativism. That is the worst possible time to try.

•

The child's techniques for getting and holding adult attention become increasingly sophisticated during Phase VII. It is important at this stage to be sure that the skills children use in holding your attention are socially acceptable and reasonable, as well as effective, and that the child knows when to stop.

The Brown Paper School Books

There's one subject that interests everyone — himself, and that seems to be the major taboo in school, where everything — even psychology — is taught as if it had no connection to the student. These books invite the learner to begin his explorations with himself and to discover the wider world as it relates to him and he to it. The lessons are experiential; they direct learners to do things rather than just read about them; and they're fun, intriguing enough that scout leaders and other people who work with kids outside of school might want to use some of the activities. If your child isn't lucky enough to get this kind of education in school, buy the books; you'll probably enjoy them as much as your child does.

—Linda Williams

My Backyard History Book
David Weitzman
1975; 127 pp.

The I Hate Mathematics! Book
Marilyn Burns
1975; 127 pp.

The Reason for Seasons
Linda Allison
1975; 127 pp.

Blood and Guts
(A Working Guide to Your Own Insides)
Linda Allison
1976; 127 pp.

The Book of Think
(Or How to Solve a Problem Twice Your Size)
Marilyn Burns
1976; 127 pp.

Everybody's A Winner
(A Kid's Guide to New Sports and Fitness)
Tom Schneider
1976; 139 pp.

$3.95 each postpaid
from:
Little, Brown & Company
200 West Street
Waltham, MA 02154
or Whole Earth

Tube Race

Get old inner tubes from a company that sells truck tires. (Car tires are mostly tubeless these days.) Stage a tube race by having contestants sit on the tubes and try to make them move. Touching the ground directly with feet or hands is not allowed.

Super Slide

Get a 10-by-20-foot sheet of plastic from a hardware or builder's supply store (about $4.50). Unroll it on the ground, flood it with water from a garden hose, and you've got a dandy Super Slide.

Everybody's a Winner

Blood and Guts

The Dictionary Game

The rules: One person looks in the dictionary for a word that no one knows. There are plenty to choose from.

Then each person invents a possible definition of that word and writes it down. The person with the dictionary writes the real definition. Even if there are several definitions in the dictionary, one is enough. Or it may be shortened if it's really long.

All the definitions go to the dictionary person. That person now reads all the definitions. Including the real one. Each player then has to try to guess the right definition.

The Book of Think

The Self-Respecting Child

A book has appeared in Great Britain called The Self-Respecting Child, *by Allison Stallibrass (Thames & Hudson, London). It is about the ways in which children, under five, and as young as a year or less, explore the world around them, and grow in doing so. I consider it about the best book on this subject that I have ever seen. I think it should be a kind of Bible for anyone and everyone involved in the day care movement, play groups, nursery schools, kindergartens, or just parents of young children. I have been struggling to get American publishers to publish it in this country, with no luck.*

—John Holt

The Self-Respecting Child
Alison Stallibrass
1974; 272 pp.
$11.80 airmail postpaid
from:
Thames & Hudson Ltd.
30 Bloomesbury Street
London, WC1
England

The purpose of this book is to deepen our understanding of the spontaneous and voluntary activity of normal healthy children. It is written for parents and for all those people who are interested in the possibility of increasing the happiness and wisdom of future generations.

It does not contain a comprehensive list of all the games that children play, or all the skills or kinds of knowledge that they acquire through their activity. But it does try to get to the bottom of play — to discover the basic needs that children satisfy through play, and to answer such fundamental questions as:

Why do children need to play and what sort of play do they choose?

Do children learn through their self-chosen play, and if so — what?

Is this learning necessary for their full and healthy development, and why?

Does the present-day environment of a child allow him to develop the basic human faculties and a healthy, integrated personality and, if not, what can be done about it.

Growing Without Schooling

*John (*How Children Learn, Escape From Childhood, *etc.) Holt enthusiasts will want his new newsletter. $ .50 for a sample issue, $10 for 6 issues, from Holt Associates, Inc., 308 Boylston Street, Boston, MA 02116.*

—SB

Sesame Street Magazine

My two and a half year old is a Sesame Street Freak. The discovery that the mailman brings a magazine about Bert and Ernie and Company is absolute magic for her. Since it's designed to cover a range of ages, some activities are too advanced and others too simple; but that doesn't bother her since she makes up her own games anyway.

—Linda Williams

Sesame Street Magazine
$6.00 /year
(10 issues)
from:
Sesame Street Magazine
P.O. Box C-10
Birmingham, AL 35282

Gordon Ashby Archive

Nicholas Copernicus

GIRAFFE'S NECK

BY TERRY LAWHEAD

WEDNESDAY I began a new job, digging a drainage ditch for a lawn area. The home positioned itself at precise right angles to a street running north and south and devoid of any interest whatsoever. Even the young blossoming trees, so glad, but looking out over curbs and mailboxes, were without hope. In the backyard a vivacious Korean dogwood was standing pretty and alone beside a wild stretch of blackberries and scotchbroom. Dreaming in the tangle was an old concrete foundation, a solid slab of a floor upon which men and women working round the clock in the Lake Washington shipyards during World War II squaredanced. Kid's voices screeched from a playfield further away. A Cedar Deodora stood shyly with head bowed in an adjoining yard.

But I am in the front yard near the garage digging the ditch. The soil is fluff and all I can think about is potatoes and scrawny weary-eyed Indian children. A sod lawn will be rolled out here tomorrow. I want to sit someplace quiet and watch carefully the difficult tasks I have raised for myself. The birds are gone. Cars squat angrily in driveways stupid with power. An elderly woman watches me through her living room window from a broad sofa. One hand supports her chin. The sun is hot on my shoulders as I bend over my drainage ditch.

I think of Copernicus dying in his tower, his book *On The Revolutions Of The Heavenly Spheres* just published and lying on the bed. The Baltic Sea lies grey outside the tiny window. He is weak and unaware of the book near his hand and does not speak. His incredible suspicion that the earth revolves around the sun he kept to himself for thirty-one years for fear that his assumptions were unsound. He was afraid of ridicule. The times were surging with curiosity but he remained afraid. To reassure himself he would read at night over and over the letter by Lysis to Hipparachus which he himself had translated into Latin from the Greek. Lysis is bemoaning the profound loss of Pythagoras and advising caution in regard to discussing the teachings.

Terry Lawhead writes about himself: "I'm digging ditches as a job nowadays. . . . I was busted in the sixties for political activity. . . . got thrown through a window of a hobo hotel on first avenue for trying to make people stop throwing rocks at small shops. I was all for leveling the first national bank and the draft office but small shops. . . . four cops threw me through a window and beat me flat in broken glass. . . . the anti war effort and bust broke the armor and got me out into the world."

After the death of Pythagoras, I could not believe that the ties between his pupils would be broken. Though, against all expectation we were, as if by a shipwreck, cut adrift and dispersed hither and yon, it remains our sacred duty to remember the divine teaching of our master and not to divulge the treasures of philosophy to those who have not undergone preliminary purification of the mind. For it is not proper to divulge to all and sundry what we have acquired with such great effort, just as it is not permitted to let ordinary men into the sacred mysteries of the Elysian goddesses. . . . Let us remember how long it took us to purify our minds of their stains until, after five years had run their course, we became receptive to his teachings. . . Some of his imitators achieve many and great things, but in the improper way and not in the manner in which youth should be taught; thus their audience is encouraged to ruthlessness and insolence, for they stain the pure tenets of philosophy with rash and impure demeanour. It is as if one were to pour clean, fresh water into a well filled with dirt – for the dirt will only get agitated, and the water will be wasted. This is what happens to those who teach and are taught in this manner. Thick and dark forests cover the minds and hearts of those who have not been initiated in the proper manner, and disturb the mild contemplation of ideas. . . . Many tell me that you teach philosophy in public, which was forbidden by Pythagoras. . . . If you mend your ways I shall love you, if not, you are dead in my eyes. . .

Copernicus eventually published at the encouragement of a young disciple, Rheticus. But he never lived to witness the book completed. And in that first edition lying close beside his shaking, dying hand, there was an anonymous preface which told the reader that its contents need not be regarded as true or even as probable. No one knows who wrote that preface.

I dig a ditch in suburbia. It would be better to walk to the foothills and pray. Perhaps soon. Now that so much inertia is over, the miraculous deeds long since passed, and we no longer walk upon water nor heal the dying but are settling into our own lives and the lives surrounding our thoughts, I am able to work blindly and steadily. I am certain of nothing but possess an expectation, always.

> " . . . the ideal of wisdom, of incessant labour, of almost terrifying purity, seen through the light of some mystic and spiritual devotion like, but transcending, the love of man for woman."

I hear a clapping sound.

It is a sound faster than my own heartbeat, and coming toward me up the street. I look up from my bent posture. Sweat runs down my cheeks.

A white horse appears and riding upon it is a long haired young woman. The horse is prancing with restraint, kicking shiny hooves in a singular parade. The woman is wearing shorts and sleeveless blouse; her sleek bronze skin stands out against the body of the horse.

Neither horse nor rider look to the side but continue on. I step from my ditch, amazement becoming awe. A series of understandings run before my mind like rodents fleeing before a fire. Take me, I whisper in a low tone. You have found me where I have hidden myself. Take me. I understand now my error.

They do not notice me but ride on; ride on, celebrating the sunshine and blossoms begin dancing in a scent filled breeze coming from nowhere. Birds return to sing in the branches of the trees. The grey rockery resembles something powerful, something I had forgotten. I begin a step forward but stop, turn, and return to my ditch and take ahold of my pickax. The ditch wiggles across the ground like the memory of a kindness and stops at the pavement. That is where I began. The sound of hooves cease.

I must be patient for I do not know what brought me to this place nor what it wishes to yield to me. I recall the seagulls riding the lake winds rising along the floating bridge. They hang above the guardrail and drift east and west without moving a wing, relaxed.

I know there are lives so large they are able to blot out the sun, throwing great shadows upon our private struggles. In that warm darkness our own hands ignite into flames and speak in tongues.

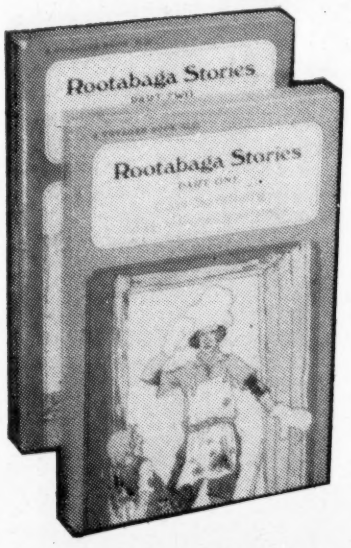
There are minds molten, slewing off enormous passions which rush wildly down steep paths to the sea.

There are bodies so vast, so constant, that minds flow in them like blood. ▪

Rootabaga Stories

Epistemologist Gregory Bateson says they're the best thing Carl Sandburg ever did. They are definitely the strangest — haunting encounters of characters such as The Potato Face Blind Man, Blixie Bimber, Johnny the Wham, Slip Me Liz, and the Gold Buckskin Whincher. Something powerful is going on amid the whimsy making it peerless aloud-reading, even to yourself.

—SB
[Suggested by Gregory Bateson]



Rootabaga Stories
Parts 1 & 2
Carl Sandburg
1974; 448 pp.
$3.45 postpaid
from:
Harcourt Brace
Jovanovich, Inc.
757 Third Avenue
New York, NY 10017
or Whole Earth

One Story — "Only the Fire-Born Understand Blue"

. . . "For some people shadows are comic and only to laugh at. For some other people shadows are like a mouth and its breath. The breath comes out and it is nothing. It is like air and nobody can make it into a package and carry it away. It will not melt like gold nor can you shovel it like cinders. So to these people it means nothing.

"And then there are other people," Fire the Goat went on. "There are other people who understand shadows. The fire-born understand. The fire-born know where shadows come from and why they are.

"Long ago, when the Makers of the World were done making the round earth, the time came when they were ready to make the animals to put on the earth. They were not sure how to make the animals. They did not know what shape animals they wanted.

"And so they practised. They did not make real animals at first. They made only shapes of animals. And these shapes were shadows, shadows like these you and I, Fire the Goat and Flim the Goose, are looking at this morning across the booming rollers on the east sky where the sun is coming up.

"The shadow horse over there on the east sky with his mouth open, his ears laid back, and his front legs thrown in a curve like harvest sickles, that shadow horse was one they made long ago when they were practising to make a real horse. That shadow horse was a mistake and they threw him away. Never will you see two shadow horses alike. All shadow horses on the sky are different. Each one is a mistake, a shadow horse thrown away because he was not good enough to be a real horse. . . .

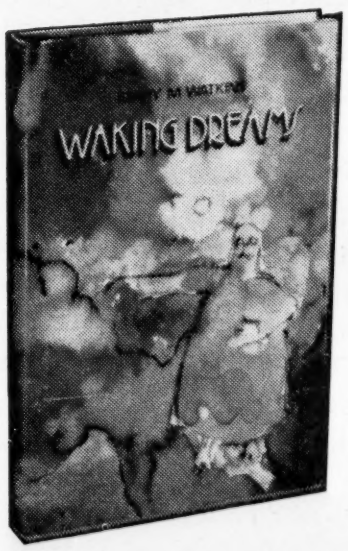
Waking Dreams

I dream a lot. So does my childhood friend Mary Watkins. Mary was the quiet, spiritual type when we were kids. I was noisy and grounded. I guess we've sort of co-evolved.

Mary Watkins has run through Rice, Princeton, Harvard, the C.J. Jung Institute in Zurich, and the Menninger Dream Lab. She has written a book. I'd give my eyeteeth to have written such a book.

On dreams. On the metaphor of dreaming and imagining. On the half-dream state. On the mythopoetic function of fantasy. On movements in imaginal space. On imagining about imagining. I couldn't put it down.

—Jeanne Campbell



Waking Dreams
Mary M. Watkins
1976; 174 pp.
$14.50 postpaid
from:
Gordon and Breach
1 Park Ave.
New York, NY 10016
or Whole Earth

In the Middle Ages it was a common practice to hold conversations with the soul . . . to ask it questions and to hear answers arising from a source other than consciousness. One was aware of things outside the ego and could connect with them, but in a way that could be consciously remembered and experienced. Hugh de St. Victor began such a conversation in the following way:

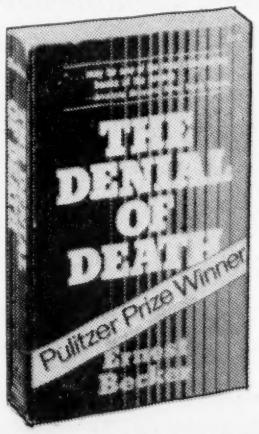
I will speak in secret to my soul, and in friendly conversation I will ask her what I should like to know. No stranger shall be present, we will talk alone and openly to each other. Thus I need not be afraid to ask even the most secret things and she will not be ashamed to reply honestly.

Tell me, I ask you, O my Soul, what is it that you love above everything?

The Denial of Death

Psychoanalysis is not such a big favor, it says here. Successful analysis takes away your difficult to deal with neurotic fears of fathers and elevators and mothers and crowds and high places and sex. And then you have to face the realistic and impossible to deal with fear of death. Becker says that we will always be neurotic to some extent because neuroses are a necessary way of keeping ourselves from remembering how terrible life is, and how short. Most people can't stand facing the horrible truth, so they settle for an uncomfortable but bearable lie. Creative people see more truth than most in Becker's view, and you notice that they go crazy a lot. A good book to shake you up and remind you that not all ills are curable, some of the worst ones come with the human condition. (Becker's starting point is Freud. He disagrees with him and goes beyond him on many points but the book is probably Freudian enough to irritate people who totally reject Freud on feminist or general principles. I think it's worth it; some people might not.)

—Anne Herbert



The Denial of Death
Ernest Becker
1976; 315 pp.
$2.95 postpaid
from:
Macmillan
Publishing Co., Inc.
Order Dept.
Front & Brown Streets
Riverside, NJ 08075
or Whole Earth

By pushing the problem of man to its limits, schizophrenia also reveals the nature of creativity. If you are physically unprogrammed in the cultural *causa-sui* project, then you have to invent your own: you don't vibrate to anyone else's tune. You see that the fabrications of those around you are a lie, a denial of truth — a truth that usually takes the form of showing the terror of the human condition more fully than most men experience it. The creative person becomes, then, in art, literature, and religion the mediator of natural terror and the indicator of a new way to triumph over it. He reveals the darkness and the dread of the human condition and fabricates a new symbolic transcendence over it. This has been the function of the creative deviant from the shamans through Shakespeare.

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Albuquerque, NM
David Ross
San Luis Obispo, CA
Lester Rumble
Loma Linda, CA
Michael Sadd
Sudbury, MA
Robert P. Sanders, Jr.
Boulder, CO
Pamela Sanderson
Boulder, CO
Stephen Schiller
Berkeley, CA
Stephen F. Sears
Ottsville, PA
Dick Shoup
Belmont, CA
Richard Sigmon
Hyattsville, MD
Gwilym Smith
Vancouver, BC, Canada
Evan Solley
Portland, OR
Terry L. Stamper
Troy, MI
Edward Still
Birmingham, AL
Jeff Stohl
Seattle, WA
Robert Stolzman
Morristown, NJ
Kent Strumpell
Los Angeles, CA
David S. Swetland
Philadelphia, PA
Ian Theaker
Alberta, Canada
Clark Thompson
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George F. Thornally, Jr.
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Western Shore Research & Development Library
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Windsox Restaurant
Calistoga, CA
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Austin, TX
Richard K. Worthington
Aspen, CO
and Nine Anonymice

The Retaining Subscriber list includes only those who became retainers since the last issue, as of 8/17/77. Retaining and Sustaining Subscribers get their magazine delivered first class (airmail) for a year. Maniacal Subscribers get The CQ *for life. Each of the donation amounts (minus $8) is tax deductible.*

Gossip

The next CQ (Winter 77-78) will be partially on "Broadcast" (in the total communications/media sense) with guest editors Larry Lee and Scoop Nisker from San Francisco's KSAN. Submissions welcome.

This place is getting like a ball team during a war. So many of our players have joined the troops in the state capitol we're almost short-handed.

Contributor Theodora Kroeber has joined contributor Gregory Bateson on the University of California Board of Regents. Contributor Russell Schweickart organized Governor Brown's "Space Day" and will stay on as the Governor's Assistant for Science and Technology. Former POINT Director Huey Johnson is now on the Cabinet as Secretary of Resources. The Office of Appropriate Technology is hiring our Land Use editor Rosemary Menninger to work full-time on community gardens. Another Land Use editor, Peter Warshall, is being wooed by the California Water Quality Control Board, a significant post in drought years, and also full-time. And I continue to moonlight as a Consultant to the Governor one day each week.

A lot of trouble. Is it worth it? Yeah.

Jeanne Campbell, longtime voice of **The CQ** *in all promotion and distribution matters, is busy putting together her own promo operation in San Francisco, so Mike Young now takes on promotion scheduling and mailing. Anne Herbert is writing the promotion copy. And Andrea Sharp has taken over distribution.*

The steady increase in subscribers (now 20,797) has brought in tidepool enthusiast David Burnor, 27, to help with subscriber list maintenance. Working in noisy rooms like our front office is no problem for him — he grew up in an Army family with six other kids.

Meanwhile our neighborhood is in an uproar. Beside the houseboat fracas described on p. 40, bringing in battalions of police and press and urgent phone calls, also our building is being face-lifted around us. Redwood paneling on the outside, skylights puncturing the roof and raining grick on the layout tables, a ditch across the volleyball court (raising the aggression level), and constant din. And an additional new office to expand into, which will be nice.

It's been a quarter of heavy negotiating with New York. Dutton, W. H. Freeman, Harper & Row, Bantam, and others, as well as Penguin-Viking, got into the seemingly endless discussion of what to do about distributing the first three "CoEvolution Books" — **Space Colonies, Soft Tech,** *and* **Watersheds.** *We finally settled on Penguin-Viking with an agreement where they purchase 20,000 copies of each book at 25% of the cover price ($1.25 per copy). For us it's low risk, low profit, and more work to assemble than we thought at first. You keep wanting to add new things to a book. They are bottomless invitations.*

Another financial dealing this quarter was an ambivalent occasion. A week or so prior to the vaunted first "Whale Day" in Japan, which was co-produced with the Japanese by the Dolphin Project (of Florida and California), I got a quietly desperate phone call from one of the organizers. If they couldn't raise an additional $8,000 that afternoon, he said, the whole event was going to collapse into a tangle of conflicting technicalities of travel guarantees for entertainers, etc. Whoever loaned the money would get it back intact in two weeks, he guaranteed. So I loaned the $8,000 from POINT. "Japan Celebrates the Whale and Dolphin" happened, was important, lost money, got its books crossed, and our money disappeared. A couple of benefit attempts to restore it haven't succeeded. How do we feel about it all? Glad. Sorry.

Boy, did we get a lot of mail correcting my error ascribing the authorship of Harlan Ellison's classic s.f. short story "Repent Harlequin, Said the Ticktockman" to J. G. Ballard. My favorite of the stack was a bruising one-liner from W. E. A. Fennel of Honolulu:

"REPENT, EDITOR! SHRIEKED THE HARLANELLISON."

—SB

The Whole Earth Truck Store is looking for a new manager. A bitch of a job, yet a challenging opportunity to guide an existing substantial business in expanding its services. $4.75 per hour. Please send resume and cover letter to the Whole Earth Truck Store (see address at right).

CQ finances — the whole picture

Some of you may wonder how we manage to show a loss in our financial report almost every quarter and yet continue to exist. Well, there is more to the picture than we have been showing in the report that usually appears in this space. In the past we have just shown the balance sheet for the magazine itself. In this issue we are including a balance sheet for POINT, the organization that publishes **The CoEvolution Quarterly** and now absorbs its losses. Our goal is to have the magazine be self-supporting, but since we persist in NOT breaking even, we all felt it was time to show you how we survive. A bit of history needs to be filled in.

POINT is the foundation started by Stewart Brand to handle the profits from the LAST WHOLE EARTH CATALOG. (Details of this are in the EPILOG, p. 752.) After giving away a number of grants, POINT's assets were virtually depleted by the time the EPILOG was published and the third issue of **The CQ** was out (Fall 1974). What was left was a bond valued at about $23,000.00, some worthless stock and the potential royalties from the EPILOG and CATALOG. The bond we still have and it yields $1,250.00 a year in dividends. It is our security blanket. The Penguin-Viking royalties vary from quarter to quarter. We so grossly over-printed the EPILOG (450,000 copies, many of which have since been shredded) that for years we were deeply in debt to Penguin paying off the print bill and absorbing the returns from bookstores. Now we are out of that hole and they are paying us at a modest rate. But the EPILOG is basically a wash. Everytime we reprint CATALOGS and sell out (and the CATALOGS continue to sell steadily, year after year, at about 18,000 or so a year) we make about $15,000, but then we need to reinvest it in a new printing of CATALOGs.

Other factors: An anonymous and beloved benefactor who bestowed upon us $25,000. **Organic Gardening & Farming** paying us grandly (three grand, to be exact) for the privilege of using some of our material in their August '77 issue. A vital subsidy in the form of deferred salary on the part of our Editor, SB, who does not collect the full monies owed him each year. When we start making money we will gradually pay him back, with interest, but his loan to us is one of the factors that keeps the magazine surviving.

Another aspect of POINT's activities that can either generate or deplete the funds in our bank account are SPECIAL PROJECTS. Below are the details of all these projects. The soon-to-be published **CQ** books are the latest effort. For now we are publishing them on a no-risk basis where Penguin-Viking buys the finished books from us at an established rate. Our costs are covered and we are guaranteed a modest profit.

The first new table is an overall summary of POINT's activities for the past quarter and for the past full year inclusive of that quarter, income and expenses. We had to be somewhat arbitrary about where to start this in time, but hope that it will be informative. The second table is the actual break-down of POINT's assets and liabilities at the end of this quarter, July 31, 1977.

—Andrea Sharp

'Or Whole Earth'

Under the access of an item in **The CQ** *means you can mail order it (Calif. residents please add 6% sales tax) from:*

Whole Earth Truck Store
558 Santa Cruz Avenue, Menlo Park, CA 94025

CoEvolution Quarterly — Fall '77 Financial Report

EXPENSES	May,Jun.,Jul. (Predicted)	May,Jun.,Jul. (Actual)	Aug.,Sep.,Oct. (Prediction)
Salaries and fees			
Office	$15,000.00	$16,220.06	$15,000.00
Production	6,500.00	6,199.41	6,000.00
Editors	12,000.00	11,329.01	12,000.00
Contributors	4,000.00	5,383.00	6,000.00
Office rental, materials, etc.	9,500.00	7,412.51	9,500.00
Phone	1,500.00	1,424.01	1,500.00
Promotion	13,900.00	10,813.83	12,000.00
Printing	16,500.00 (45,000 copies)	19,041.86 (45,000 copies)	24,300.00 (55,000 copies)
Subscription process and mail	11,000.00	12,435.43	15,000.00
Shipping	1,400.00	1,641.32	1,600.00
Business reply	1,000.00	1,400.00	1,500.00
Refunds	200.00	167.75	300.00
Total	$92,500.00	$93,468.19	$104,700.00
INCOME			
Subscriptions, gifts and renewals	$56,400.00	$54,467.50	$56,250.00
Retaining and Sustaining	3,500.00	4,400.00	6,000.00
Back issues	7,000.00	4,677.04	7,750.00
Distribution	11,500.00	11,435.94	11,000.00
Total	$78,400.00	$74,980.48	$81,000.00
NET PROFIT OR (LOSS)	($14,100.00)	($18,487.71)	($23,700.00)

POINT Financial Report

	PAST QUARTER May, June, July 1977	PAST YEAR 12 Month Period 8/1/76–7/31/77
CQ (detail above)		
INCOME	$74,980.48	$301,267.91
EXPENSE	93,468.19	324,926.58
CQ Books		
INCOME		
Penguin-Viking	—	—
Direct Mail-Order	—	—
EXPENSE		
Production & Mail-Order Supplies	1,369.89	1,429.89
Catalog & Epilog		
INCOME		
Penguin-Viking	7,575.00	38,445.94
Direct Mail-Order	1,443.75	6,185.06
EXPENSE		
Production & Mail-Order Supplies	481.32	4,367.43
Maps, Posters, Postcards		
INCOME	1,661.43	7,524.39
EXPENSE	45.00	6,213.99
Miscellaneous		
INCOME		
Dividend payment	625.00	1,250.00
Anonymous Gift	10,500.00	21,000.00
Organic Gardening & Farming Royalty	3,000.00	3,000.00
Project Jonah Loan Repayment	—	3,000.00
EXPENSE		
Point, Miscellaneous	1,553.00	5,956.00
SB Salary	3,000.00	14,500.00
TOTALS		
INCOME	$99,785.66	$381,673.30
EXPENSE	$99,917.40	$357,393.89

POINT Balance Statement 31 July 1977

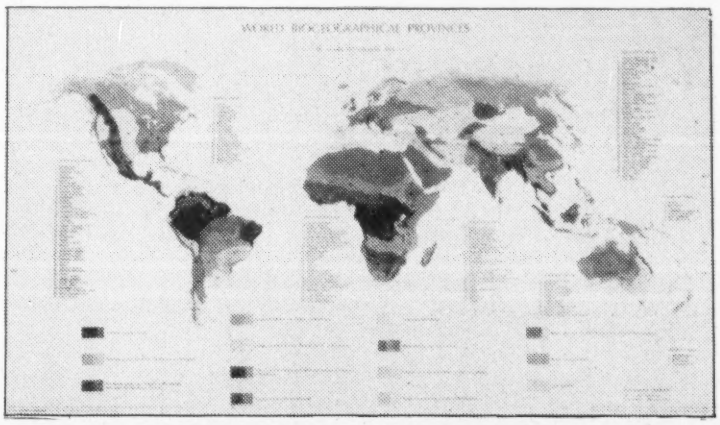
ASSETS	
Cash in bank	$ 48,701.32
Investments	24,682.25
Accounts receivable	
Distributors	26,986.00
Dolphin Project loan	8,000.00
INVENTORY*	
Back issues, CQ	27,937.28
Maps, posters, post cards	2,944.18
Mail-order LWEC & WEE	5,028.00
Mail-order CQ Books	—
Penguin inventory	
CATALOG ($1.73)	14,435.12
EPILOG ($1.01)	115,312.71
LIABILITIES	
Accounts payable	—
Deferred SB salary	15,000.00
Subscription liability	80,170.00
Penguin-Viking print bill for CATALOG	15,825.93

*These figures are based on cost and are only of value to us if sold. We still have 114,000 Epilogs and it is doubtful that we will ever sell these. Without taking into account our inventory — which is not liquid assets — our current assets are very close to our current liabilities. —AS

Grassroots CQ distribution

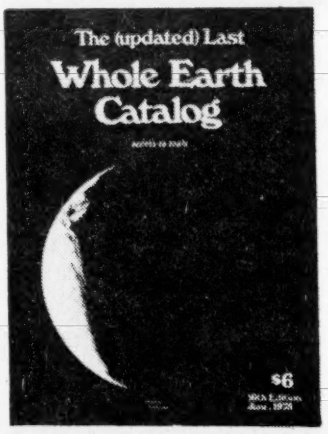
BOOKPEOPLE will be handling our grassroots (10 to 50 issues) accounts from now on. They offer a 40% discount, returns credited, you pay the shipping charges. Please write them at 2940 7th St., Berkeley, CA 94710 for information. Please contact me at Box 428, Sausalito, CA 94965 for information about our terms for larger distributors.

—Andrea Sharp



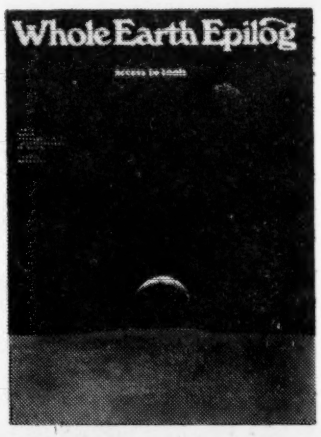
World Biogeographical Provinces Map, 22¾ x 39" – $3

A somewhat deeper politics is visible in the boundaries of biogeographical provinces, and human politics commonly errs by ignoring them. This map incorporates recent scientific research in plant and animal distribution.



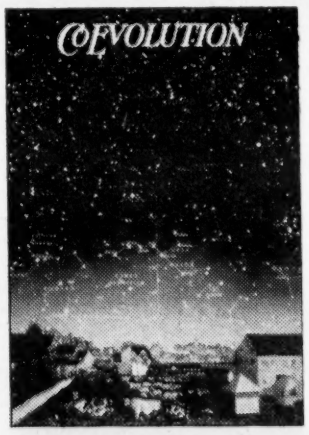
Whole Earth Catalog – $6

Winner of the 1972 National Book Award, the **LWEC** functions as an evaluation and access device. It contains reviews of books and tools in the original Whole Earth categories: whole systems, community, shelter, craft, nomadics, communications, land use and learning.

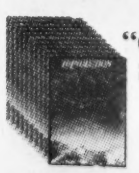


Whole Earth Epilog – $4

The **Epilog** is, in effect, Volume II of the **Last Whole Earth Catalog**. It begins with page 449, and contains 320 pages of all new material, cross-referenced and cross-indexed to the **Catalog**.



"CoEvolution Face"



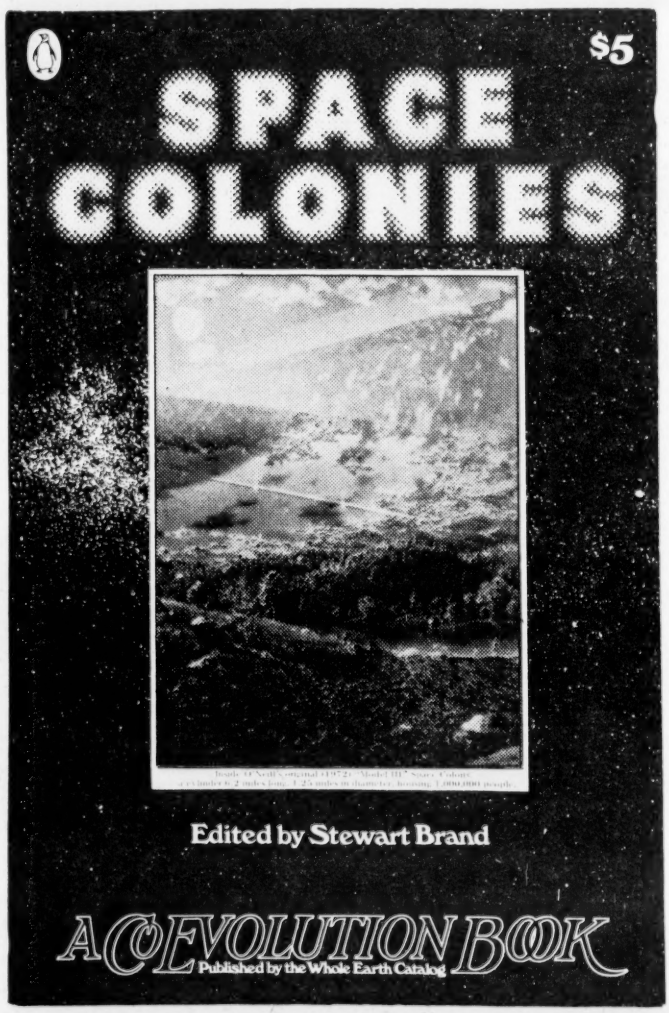
"CoEvolution Sky"

Full-color **Poster**, 18 x 24", "Face" or "Sky" – $4

Full-color **Postcards**, "Face" or "Sky", set of 10 – $2

"To those who have looked at the night sky and not seen a black wall, blessings. Life proceeds, and spreads before the Sun. Cambridge is turning towards our planet's dawn line, and I must pack."

–Eric Drexler



$4

to CQ subscribers

($1 off retail)

The first of a series of CoEvolution Books, **SPACE COLONIES** *contains the best of our two Space issues (Fall 1975 and Spring 1976, both out of print), cream from other issues, and new material which won't appear in any issue – articles on solar sailing and the space colony research group by Eric Drexler, Governor Jerry Brown, MIT's working mass driver, new interviews (summer, 1977) with Astronaut Rusty Schweickart and Gerard O'Neill by 21-year-old Jane McClure, and new space poems by her father Michael McClure.*

The book is 160 pages, book paper, color covers inside and out, indexed. Available for $4 from us by mail, or $5 at your bookstore (distributed by Penguin Books).

CoEvolution Quarterly, Box 428, Sausalito, CA 94965

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(See overleaf for back issues available.)

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6 — BIOGEOGRAPHICAL MAP — $3

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8 — "Face" Postcards $2

9 — "Sky" Poster $4

10 — "Sky" Postcards $2

11 — Whole Earth EPILOG — $4

12 — Whole Earth CATALOG — $6

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2 Summer 1974

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Tongue Fu *Paul Krassner*
Sanctity and Adaptation *Roy A. Rappaport*
Natural History Comes to Whole Earth *Peter Warshall*
Land Banking *Huey Johnson*
Gravity Engines and the Diving Engine *Steve Baer*
Sexual Honesty *Shere Hite*
New Games Tournament *Pat Farrington*
Salons and Their Keepers *Stephanie Mills*
Notes on Provisioning a Small Boat for Extended Cruising *Kathleen Pumphrey*
Apple Picking *Rick Fields*
Bookmaking Access *Robin Rycraft*
Making and Playing the Shakuhachi *Monty H. Levenson*
Gorf *Michael McClure*
The POINT/Penguin Books Publisher-Distributor Contract for the Whole Earth Epilog *Lawrence Klein*

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Olbers' Paradox *Lawrence Ferlinghetti*
Jacques Cousteau at NASA Headquarters
Free Lunch Comix and Stories *Dan O'Neill*
On Observing Natural Systems *Francisco Varela in conversation with Donna Johnson*
Carl Ortwin Sauer 1889-1975 *James J. Parsons*
Theme of Plant and Animal Destruction in Economic History *Carl Sauer*
A Carl Sauer Checklist *Robert Callahan*
Trees *Jean Giono*
The Hoedads *J.D. Smith*
Environmental Impact Reports *Peter Warshall*
The B & G, The Bomb *Steve Baer*
Three Political Ideas *Paul Maag*
Theory of Game-Change *Stewart Brand*
Some Mice *Robert Horvitz*
Get Down Tonight *Deborah Haynes*
Sex Notes *Kay Weiss*
The Space Crone *Ursula Le Guin*
Memory One: Getting Started in Orygun *David Shetzline*
Winning *Ron Jones*
The Education of Joni Mitchell
Its our very effort to make reality repeatable which Buddhism calls suffering *Zentatsu Baker-Roshi*

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From Present to Future *Herman Kàhn with William Brown and Leon Martel*
The Shift from a Market Economy to a Household Economy *Scott Burns*
Future Primitive *Raymond Dasmann*
Biogeographical Provinces *Raymond Dasmann*
Controversy Is Rife on Mars *interviewing Carl Sagan and Lynn Margulis*
Odd Bodkins *Dan O'Neill*
Boone *Gurney Norman*
Mind/Body Dualism Conference Position Papers
Invitational Paper *Gregory Bateson*
Inside & Outside *Richard Baker-roshi*
Position Paper *Ramon Margalef*
Not One, Not Two *Francisco Varela*
Community Gardening *Rosemary Menninger*
The Foredads *Gary Rurkun*
Effects of Sublethal Exposure to 2,4,5-Trichlorophenoxy-Acetic Acid *J.R. Felix and Pierre Mortmain Sylvestre*
Underground Architecture *Malcolm Wells*
Cross-Generation Marriage *Theodora Kroeber-Quinn*
Earthshoes & Other Remarks *Ken Kesey*
May 12 *Louise Nussbaum*
A Street Man's Answer to Rape: Humiliate the Raper *Willie "Small Banana" Williams*
Animal Stories *J.D. Smith*
The American Anti-Whaling Movement Is Racist *Michael Phillips*
Lucy's Blueprints *Lucy Burrows Morley and Christopher Thompson*

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Streaming Wisdom *Peter Warshall*
Watershed Form and Process: The Elegant Balance *Robert R. Curry*
John Wesley Powell: Conscience of the Colorado *Peter Wild*
Watershed Vignettes *Thomas Dunne and Luna B. Leopold*
Another Watershed Vignette: Lake Tahoe, California *Peter Warshall and J.T. and Carin Winneberger*
Diagnosing Stream Health *Thomas Dunne and Luna B. Leopold*
El Rancho Los Pesares *Jaime de Angulo*
Forests and the Purposes of Man *Roy A. Rappaport*
Headwaters: A Short History of a Backwoods Battle *Randal Lee O'Toole*
Whose Trees? Whose Science? *Jack Westoby*
Christo's Running Fence *Mike Alexander, Barbara and Paul Kayfetz, Peter Warshall*
Healing the Land: The Redwood Creek Renewal Project *Gerald Myers*
That Which Makes You Move: A Conversation With Taj Mahal *Lewis MacAdams*
Interspecies Music *Jim Nollman*
Access to Watershed Music *Peter Warshall*
From Urgencies to Essentials *speech by Canadian Prime Minister Pierre Elliott Trudeau*
The New Alchemists *J. Baldwin*
The Acorn People *Ron Jones*
I would like to write a silence *Anne Herbert*
Odd Bodkins *Dan O'Neill*

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Voluntary Simplicity (3) *Duane Elgin and Arnold Mitchell*
Voluntary Simplicity (1) *Richard Gregg*
SRI Is Wrong About Voluntary Simplicity *Michael Phillips*
The Poverty of Power Reviewed *Kenneth Boulding*
Remarks on Recombinant DNA *James Watson*
There Ain't No Graceful Way *Astronaut Russell Schweickart talking to Peter Warshall*
Mushroom Hunting in Oregon *Andrew Weil*
Time Landscape *Alan Sonfist*
The Transformation of the Tract Home *Richard Nilsen*
Burning Wood *J. Baldwin*
The Ultimate City — Part 1 *J.G. Ballard*
Handspinning *Diana Sloat*
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Solar water heating plant installed at the Army Balloon School, Arcadia, California. Tests showed that this plant produced 1350 gallons of hot water per day. From Day and Night brochure, 1918.

"When the United States entered the war the Day and Night Solar Heaters seemed to Mr. Bailey just what every camp needed and efforts were made to bring to Uncle Sam's attention all the good points of the apparatus. A demonstration heater was installed at the Army Balloon School at Arcadia and 500 gallons a day of hot water were provided for the boys. The balloon school heater was a success, but it did not prove anything to Washington, where high officials had been reading the advertising literature in vain. After long delays Mr. Bailey received a letter in which an army officer of high rank told him that, after deliberation, it appeared to the Board of Investigation that the proposition of heating water according to the Bailey method was about as feasible as getting gold from gold fish."

Monrovia, California, **Daily News**

Signal Hill oil field in the Los Angeles basin circa 1920. Discoveries of oil fields were the end of solar water heaters.